In January, **1911, RYDE'S CLASSES begin their 10th Year.**

RYDE'S Classes

ORAL { Held on SATURDAYS only at St. Sepulchre Schools, Holborn Viaduct, E.C.

CORRESPONDENCE

Conducted from the Offices, 79, Gresham Street, London, E.C.

Arrangements for First Quarter, 1911.

Re-opening of Classes after Christmas Holidays.

ORAL CLASSES. Commence on Saturday, January 7th, 1911.

1. **PRELIMINARY CERTIFICATE** } **1911.** Part II. Revision.
2. **PRELIMINARY CERTIFICATE** } **1911-12.** Full Course.
3. **CERTIFICATE, 1911.** One Year Course.
4. **CERTIFICATE, 1912.** Two Years Course.
5. **OXFORD SENIOR LOCAL,** for March or July, 1911.
6. **CAMBRIDGE SENIOR LOCAL,** for July, 1911.

☞ The "A" Section, Oral, 1911 Certificate is now FULL, having 50 Students. Names should be entered AT ONCE for the "B" Section (Oral) for Certificate, 1911.

☞ A separate room will be used for the new 1912 Certificate Class. Several names were entered in November, 1910; names can now be received for Class beginning on January 7th.

CORRESPONDENCE CLASSES. For dates please see Nos. 7-15.

All the following will begin with the work of the "First Week" on the dates specified.

		Class commences:—
7.	**PRELIMINARY CERTIFICATE, 1911.** Revision Course, Part II. only ...	**Thursday, January 12th.**
8.	**PRELIMINARY CERTIFICATE, 1911-12.** Full Course (all subjects) ...	**Tuesday, January 10th.**
9.	**CERTIFICATE, 1911.** One Year Course	**Tuesday, January 10th.**
10.	**CERTIFICATE, 1912.** Two Years Course	**Tuesday, January 10th.**
11.	**OXFORD SENIOR LOCAL, March, 1911.** Revision Course	**Thursday, January 12th.**
12.	**OXFORD SENIOR LOCAL, July 1911**	**Wednesday, January 11th.**
13.	**CAMBRIDGE SENIOR LOCAL, July 1911**	**Wednesday, January 11th.**
14.	**A.C.P., August, 1911**	**Wednesday, January 11th.**
15.	**L.L.A., May, 1911**	**Thursday, January 12th.**

Nos. 14 and 15 are suitable for Students who have passed the Certificate Examination. They may be taken in separate parts.

FEES.

The Fees for the various Classes are stated in separate circulars which may be obtained upon application.

(Please name the class about which information is desired.)

For further particulars, Entry Forms, Specimen Papers, Testimonials, Syllabus, etc., please apply at once to

MR. PERCY W. RYDE, 79, GRESHAM STREET, LONDON, E.C.

Ryde's Classes: Oral & Correspondence.

ORAL CLASSES.

ST. SEPULCHRE SCHOOLS, HOLBORN VIADUCT, E.C., have been entirely rebuilt in accordance with plans approved by the London County Council.

The Schools are quite modern in character, with excellent lighting, ventilating and warming arrangements. They are all on the ground floor, and being centrally situated are eminently suitable for accommodating the Classes.

The ORAL CLASSES meet on SATURDAYS ONLY: all subjects, including Mathematics, Science, Drawing, and Needlework, are taken in the Saturday Classes. The Classes commence work at 9.30 a.m., and conclude at 4.30 p.m. There is an interval of one hour for lunch.

N.B.—The following extract is from a letter dated July 30th, 1907, received by Mr. Ryde, from the Assistant Clerk of the London County Council:—

"Adverting to your letter of the 18th instant, I am directed to inform you that uncertificated and supplementary teachers who desire to continue to attend your Classes will be allowed by the Council to do so."

Preliminary Certificate Examination, 1910:

145, Wellesley Road,
Ilford, E.

DEAR MR. RYDE, June 22nd, 1910.

I have received result of Part II., and you will be pleased to hear that I have passed.

Thanking you and your staff for your kind and able assistance while studying, and wishing your classes every success.

I remain, yours sincerely,
PATRICIA MACKENNA.

The Elms, Hanwell,
London, W.

DEAR MR. RYDE, June 22nd, 1910.

You will be pleased to hear that I have passed the Preliminary Certificate Examination. Many thanks for the valuable assistance received at your Oral Classes, from you, and your excellent staff.

Yours sincerely,
MAY WALSH.

Oral Classes re-open Saturday, January 7th.

Certificate Examination, December, 1909:

72, Clova Road,
Forest Gate, E.

DEAR MR. RYDE, March 11th, 1910.

I thought you would be pleased to hear that I have been successful, gaining **distinctions in English Language, Literature and Composition and Music.**

Yours very sincerely,
HELEN C. ELSEY.

47, Drayton Road,
Bruce Grove, Tottenham.

DEAR MR. RYDE, March 12th, 1910.

I am very pleased to tell you that I have been successful in the Certificate Examination held in December last, and have passed with **distinction in English Language, Literature and Composition.** I wish to take this opportunity of heartily thanking you and your staff for the valuable help I received at your classes, and I shall have much pleasure in recommending them to other teachers.

Yours very sincerely,
ELSIE L. PUTMAN.

28, Beaconsfield Road, Leyton.
March 11th, 1910.

Have passed with a **distinction in Principles of Teaching.** All thanks to you. Cannot beat Ryde's tuition.

GLADYS PITKIN.

31, King's Road, Leytonstone.

DEAR MR. RYDE, March 11th, 1910.

The Certificate Result has just arrived; I am pleased to tell you I have passed with **distinctions in History and Geography.** My success is entirely due to your splendid training, combined with that of Mrs. Ryde and all the tutors. Thanking you very much indeed.

I remain, yours very sincerely,
ELSIE V. DAVIS.

17, Park Road,
Bromley, Kent.

DEAR MR. RYDE, March 11th, 1910.

You will be pleased to hear that I have passed my Certificate Examination with a **distinction in Principles of Teaching.** I must thank you very much indeed for all the valuable help you gave me.

Yours sincerely,
ESTHER GRAHAM.

205, Cumberland Road,
Victoria Docks, London, E.

DEAR MR. RYDE, March 11th, 1910.

Am pleased to tell you I have passed the 1909 Certificate Exam. with **distinction in History and Geography.** I wish to thank you for the splendid help I received during the time I attended your classes.

I shall recommend your classes whenever possible.

I remain, yours sincerely,
OLIVE QUICK.

For further particulars, Entry Forms, Prospectus, Specimen Papers, Syllabus, etc., please apply:—

MR. PERCY W. RYDE, 79, GRESHAM STREET, LONDON, E.C.

Ryde's Classes: Oral & Correspondence.

CORRESPONDENCE CLASSES.

The Correspondence Classes are conducted from 79, Gresham Street, London, E.C.

The general plan of work in the Correspondence Classes is a weekly interchange of papers upon an appointed day. Students may depend upon receiving their papers with perfect regularity, and it is necessary for them to post the return work regularly upon the appointed day.

A Class Letter and Number are given to each student on joining, and these must be used on all papers and on all communications sent to the Office.

No charge is made for the Postage in the United Kingdom of the weekly packets of work.

All the Correspondence Papers are well illustrated, and re-produced with great clearness from stencils cut by good type-writing machines. Specimen papers will be forwarded upon application.

The Tutors who give the Lectures in the Oral Classes also prepare the **Correspondence Papers** and mark the Students' Exercises. Correspondence Students may therefore be certain that their work is in the hands of capable Teachers.

The papers may be retained for reference until the end of the course; they must then be returned to the Office.

Preliminary Certificate Examination, 1910:

Hope Villas, Snettisham,
near King's Lynn,
June 23rd, 1910.

DEAR MR. RYDE,

I have just heard the result of the Preliminary Certificate Examination, and I have been successful. Accept my heartiest thanks for your help, and for the help of the other Tutors.

Yours sincerely,
FRANK PAGE.

King Edward Schools,
Southwark, S.E.
June 23rd, 1910.

DEAR MR. RYDE,

I have much pleasure in telling you that I have been successful at the 2nd Part of the Preliminary Examination for the Certificate. I have worked solely upon your lines (Correspondence), and I am sure owe my success to this as in the Oxford Senior Local, entirely to your valuable tuition.

I remain, yours gratefully,
ADA V. B. FIELDING.

Certificate Examination, December, 1909:

Handley, Salisbury.
March 12th, 1910.

DEAR MR. RYDE,

I am very pleased to say that I have passed the Certificate Examination.

Yours sincerely,
ESTHER SELIGMAN.

1, Manor Street, Bridlington, Yorks.
March, 12th, 1910.

DEAR MR. RYDE,

I am pleased to be able to inform you that I was successful at the recent Certificate Examination. Thanking you for your assistance, and your kind interest in me.

I remain, yours sincerely,
ELIZA MESSENGER.

For dates of New Classes see page 1.

CAMBRIDGE SENIOR LOCAL, July, 1911. This Examination also qualifies those who pass to rank as Uncertificated Teachers—New Code 1909, p. 33 (14)—provided that English is included among the groups in which the Candidate has passed.

Students taking Cambridge Senior Local **must** present Arithmetic and three other subjects, and **may** take seven. The members of this Class will be prepared in Arithmetic and five or more other subjects. (Please send for Syllabus and Special Circular.)

August, 1910. "I am pleased to let you know I am through the Senior Cambridge owing to the good tuition I had in the Correspondence Classes." (MLLE.) EUGENE BAZIN, Fécamp.

OXFORD SENIOR LOCAL, March, 1911, and July, 1911. Many Students are now taking this Examination instead of Preliminary Certificate. According to the New Code (1909) p. 33 (13), it is necessary that the subjects passed include

Arithmetic and { History / or / English } and { Geography / or / Political Economy.

Students taking Oxford Senior Local **must** present five subjects and **may** take nine.

The members of this Class will be prepared in seven or more subjects. (Please send for Syllabus and Special Circular).

For Testimonials, P.T.O.

For further particulars, Entry Forms, Specimen Papers, Syllabus, etc., please apply:—

MR. PERCY W. RYDE, 79, GRESHAM STREET, LONDON, E.C.

Ryde's Classes: Oral & Correspondence.

Oxford Senior Local, July, 1910:

August, 1910. "I am pleased to be able to tell you that I have passed the Senior Oxford. I have found all your lessons very instructive. Thanking you for all the help given me." (MISS) W. DUNNING, Upper Holloway, N.

August, 1910. "I am pleased to tell you that I have been successful in the recent Senior Oxford Exam. Please accept my thanks for your excellent tuition." (MISS) F. WOODHOUSE, Wanstead, Essex.

August, 1910. "I am pleased to inform you that I have been successful in the recent Oxford Senior Examination. Many thanks to you and your staff for valuable tuition." (MISS) M. SAMBRIDGE, Barking, E.

August, 1910. "I am glad to say that I have been successful in the Examination, and I feel sure that your Revision Course did much towards my success." (MISS) E. DEEBLE, Castleford, Yorks.

August, 1910. "I was successful at the recent Oxford Exam. Thank you for help received." (MISS) C. BUTLER, Bamberbridge, Preston.

August, 1910. "The result of the Senior Oxford came this morning. You will be pleased to hear that I passed. Many thanks to you and your staff." SISTER M. AQUINAS, Kilcullen.

August, 1910. "You will be pleased to hear I have passed the O.S.L. Many thanks for your valuable tuition." SISTER M. AUGUSTA, Chigwell.

August, 1910. "You will be pleased to hear that I passed; many thanks for your kind assistance." SISTER M. MONICA, Fulham.

August, 1910. "You will be pleased to hear I was successful, and I now thank you heartily for the excellent tuition received." (MISS) E. McLAUCHLAN, Southwark.

August, 1910. "I write to thank you for the excellent papers which have brought me success at the recent Oxford Senior Local Exam. I have fully enjoyed the paper work, and I appreciate all your many kindnesses." (MISS) E. SEARLE, Southwark.

August, 1910. "I am glad to be able to inform you that I have been successful at the recent Senior Oxford Examination, and I feel grateful to you for the trouble you took in preparing me for it." (MISS) K. MARTIN, Bermondsey.

For dates of new Classes see Page 1.

L.L.A. Examination in May, 1911:

DIPLOMA & TITLE FOR WOMEN. UNIVERSITY OF ST. ANDREW'S.

Candidates must pass in Seven Subjects, but a pass in Honours counts as two.

One, two, or more subjects may be taken at each examination. The subjects may be taken in any order; there is no time limit respecting the completion of the Degree.

The examination is open to all "Certificated" Teachers and also to those holding other recognised certificates (see p. 8 of the St. Andrew's Regulations).

The Books to be studied are those prescribed by the University authorities.

L.L.A., May, 1910:

"I was delighted to find that I had passed in **Education** and in **Hons. Geography.** Will you please accept my warmest thanks for the great help which I received from your Correspondence Papers which has enabled me to obtain this result." (MISS) DORA KILSHAW, Leytonstone, N.E.

Under date July 28th, 1910, a Student writes:—

"Please accept my sincere thanks for the assistance afforded me in preparing for the L.L.A. Examination, of which I have this evening received the result, having obtained **Honours in Geography, Honours in English, and a Pass in Botany.**

I wish especially to thank you for the excellent papers in Hons. Geo., to which alone I attribute the success in that subject.

Will you kindly enter my name for the Pass Logic and Pass French in 1911, as I wish to attempt to complete the number of passes necessary for the degree in two years."

Special Circular dealing with subjects and fees will be sent upon application.

A.C.P. Examination in August, 1911:

All Certificated Teachers will find this Diploma well within their grasp. It is of considerable value when applying for promotion.

Candidates are not required to pass in all the subjects for a Diploma at one Examination. The subjects of any group—Theory and Practice of Education, Mathematics, Science, Languages—must be taken at one Examination. Other subjects may be taken singly.

520, Katherine Road,
Forest Gate, E.
February 2nd, 1910.

DEAR MR. RYDE,

The result of A.C.P. Examination came last night. I am pleased to say I have passed in the Education Group after four months' correspondence with your classes. This entitles me to the full diploma, as my Certificate distinctions (tuition for which I received from your Oral Classes) exempt me from examination in the other subjects. Thanking you for all the help you have given.

I remain, Yours faithfully,
ETHEL L. CLAYTON.

Special Circular dealing with subjects and fees will be sent upon application.

For further particulars, Entry Forms, Prospectus, Specimen Papers, Syllabus, etc., please apply:—

MR. PERCY W. RYDE, 79, GRESHAM STREET, LONDON, E.C.

THE PRACTICAL TEACHER

With which is incorporated

THE PRACTICAL TEACHER'S ART MONTHLY

"It is to be noted that when any part of this paper appears dull, there is a design in it."—*Steele.*

Vol. XXXI. No. 7. JANUARY, 1911. Price 6d.

Notices to Correspondents and Subscribers.

"The Practical Teacher" may be ordered of any Newsagent or Bookseller, or at any Bookstall, in the United Kingdom or in the Colonies. Supplies are sent monthly to the chief towns in Australasia, South Africa, and India.

London: 35 and 36 Paternoster Row.
Edinburgh: Parkside Works.
Dublin: 17 Talbot Street.
Leeds: 14 Albion Place.
New York: 381-385 Fourth Avenue (Corner 27th Street).
Paris: 61 Rue des Saints-Pères.
Leipzig: Königstrasse, 35-37.

Subscribers may obtain "The Practical Teacher," post free, from the Publishers at the following terms:—

United Kingdom, Continent, Colonies, and United States, } 12 Months, 8/- 6 Months, 4/-

All literary communications should be addressed to the Editor, Office of "The Practical Teacher," 35 and 36 Paternoster Row, London, E.C.

Remittances, Cheques, Post-Office Orders, etc., should be made payable to Thomas Nelson and Sons. Advertisement rates on application.

CONTENTS.

Modern Psychology and the New Methods in Education. By W. H. Winch, M.A. (Cantab.) 442

Leaves from a Rural's Log. By W. Francis Rankine 443

Back to the Land. The Experiences of a Novice 445

Simple Class Woodwork. By F. E. Melton 446

The Organisation of Juvenile Employment. By John Perkins 449

Swiss Hotel Schools. By Julian Grande, F.R.G.S. 450

Don'ts for Authors 453

Parables from Greek Mythology. By Ingeborg Lund 454

Our Art and Handwork Section—

Simple Crafts for Secondary Schools. By J. Young 458
The History Lesson and Drawing. By W. H. Elgar 460
Needlecraft for Primary and Secondary Schools. By Ann Macbeth and Margaret Swanson . 463
Art and the Book. By W. E. Sparkes . . . 467
Suggestions for Constructive Work in connection with Object Lessons. By Felix T. Kingston 471
Drawing in Public Elementary Schools. By David Summerson 474
Honours Page 476
Suggestions for Nature Studies 479

Teachers and Degrees 481

A First Lesson on Elementary Factors in Algebra. By P. H. Wykes, M.A. . 482

Our Photographic Column. By T. A. Briggs 484

Religion, Morals, and Manners. By J. Eaton Feasey 485

Practical Notes on School Gardening for January. By Bruce Cook, F.R.H.S. 487

French Prize Competition 490

Nervousness in School Children. By H. E. Jones, M.R.C.S. (Eng.), L.R.C.P. (Lond.) . 491

Far and Near 493

Modern Science Notes. By J. G. M'Intosh, B.Sc. 495

Our Needlework Column. By J. A. Fleming.
Common-sense Comfortable Clothing for Children 497

A New Course of Practical and Constructive Work. By A. R. Pickles, M.A., and Dalton Grange 500

The Editor's Bookshelf 504

The Practical Training of the Student-Teacher. By H. Leather . . . 505

Tales for the Story Hour—

The Story of the Basket. By M. Bayne . . 506
The Land of Make-Believe 507

The House System in Day Schools. By S. A. Richards, B.A. 508

The Rural Teachers' Conference. By Allen Croft 509

Scripture Lessons for Young Children. By Mrs. Florence Kirk 510

Christmastide. Carol for Four Voices. Words by R. Hilles. Music by F. H. Squires, F.R.C.O. 512

Modern Psychology and the New Methods in Education.

BY W. H. WINCH, M.A. (CANTAB.),

Honorary Treasurer of the British Psychological Society; Member of the British Association Committee on Mental Measurements; Chairman of the Committee of the Teachers' Guild of Great Britain and Ireland on Psychological Research in Schools.

(*Continued from page 307.*)

VII.—Psychological Tests, Scholarship Examinations, and the Classification of Children.

AN able contributor to the *Practical Teacher* (Mr. John Perkins) has written to ask me if I will indicate the books and articles written by expert psychologists which would be of service to teachers who wish to know the scientific evidence on which modern views about education depend. I am afraid that this knowledge is hardly contained in any text-books, and if I were to refer the teacher to the original articles in scientific journals, he would—unless he happened to be very proficient in psychology—gain little from their perusal but a feeling of bafflement. He would not understand much of the laboratory and other experimental work on which the conclusions are founded; and if he did, he might not see in what way they were relevant to his own educational problems and difficulties. Moreover, he would, I fear, find very few, if any, of these scientific journals accessible to him. All these considerations mean and imply that psychology for the teacher in its relation to the practical problems of the schools must be prepared for him by those who are competent in both fields of thought—in psychology on the one hand and in education on the other. Psychologists must and will adapt the methods of experimental research so that the very problems of the schools can be dealt with in the schools themselves in such a way that teachers can understand and help—that is, such as care to help; for no research is of value unless all those who are taking part in it give to the work enthusiasm and loving care and exactitude. It is only by trying and testing that we can find out the truth about the development of children and the value of educational methods. But teachers will often feel inclined to look with suspicion on any methods by which children are tested. They cannot easily overcome the erroneous conception that no one can want to test the development of children unless it is to see whether the teachers have or have not done *their* work properly.

It cannot be too strongly or too frequently stated that that is not the object of the psychologist. On the contrary, when he uses tests to discover the natural mental development of children, he is most anxious that they shall be such exercises as the children have not been taught. He knows very well that he is not getting a true measure of the natural capacity of a child if he judges only by attainments in which the child has been carefully prepared by much teaching. That is not what he wants; he wants to know the child's own ability.

But what has all this to do with teaching and the teacher? Has it anything to do with either of them? Let me take one or two cases in which these views have had already far-reaching effects on educational practice, and are destined to have many more. I will begin with the case of the clever children. All over the country there are Junior Scholarship Examinations for pupils in elementary schools. Those who are successful go to secondary schools, and have a chance of passing up the educational ladder in a way much easier than those of us who are now adults could have found. How are these scholarship children selected? In many cases a very great improvement has taken place in recent years on the old method of selection. There is no longer merely an examination of all the child's scholastic attainments, but to some extent a real effort is made to gauge the child's natural intelligence. The London examination, as is well known, is based upon two things—English composition and problematic arithmetic. This is a step in the right direction, but does it go far enough? Are not these subjects susceptible to a kind of special preparation which defeats the object of the scholarship examination?

It is asserted, I fear with truth, that there are schools in which special classes exist and special coaching still goes on, in order that a large number of scholarships may be gained. And what of the small schools and schools in very poor neighbourhoods where no special classes are possible? It seems obvious that a child in such schools is likely to have his chance of a scholarship unfairly diminished. But not only may some very able children be shut out; other children, not really of much mental ability, may be put in by special coaching, and these are not the children for whom the scholarships are intended. The very object of the scholarship system is defeated.

What does the educational psychologist say to this state of affairs?

He proposes a psychological examination which shall deal only with a very minimum of scholastic attainment, and shall consist of tests of natural abilities, tests which are outside the work of the school, and which cannot very well be introduced into the school as part of the ordinary school work.

No one doubts that such a system of choice would be fairer to the children, and likely to eliminate competitive coaching by teachers.

Let me pass from the clever to the retarded child. I am not now speaking of the children who are really defective—that is, who are quite lacking in some mental power

usually possessed by other children. They are already, in many cases, being adequately separated from other children. I speak rather of that much larger class of children who are several years below the proper standards for their ages. They struggle and blunder along always behind, and always much too old for their classes. The psychologist wants these tested too, for he believes that such children are not suited to the normal curriculum of schools, and would be better taught and better educated if they were given a simpler and more practical curriculum in separate schools or classes.

For educational psychologists are working out a conception of "mental age" which will help in the future of school classification in a way that "age last birthday" has never done.

But there can be no information of a quite reliable kind on such matters as these, and no practical solutions of these outstanding educational problems, unless educationists are convinced that psychology has something practical and profitable to offer to education. And I have chosen these topics of selection and organisation to-day, because teachers are by this time well aware that it has much to say about methods of teaching (or rather, methods of learning). But they are not so well aware that psychology deals with these other problems of school organisation and selection, which are equally important as, if not of more importance than, methods of teaching.

In all this work the psychologist falls back in confidence on the natural powers of the child as the necessary bases of all sound educational work. He does *not* say that every tendency of the child is to be gratified, and every impulse allowed to pass into action. But he *does* say that unless the educationist somehow connects what he is aiming at with the native and natural development of the child, and builds his superstructure upon that, he is certain to be faced by difficulties, frustrations, and disappointments.

Leaves from a Rural's Log.

I.—RURAL PHILOSOPHY.

BY W. FRANCIS RANKINE.

THIS morning, as I was making for the higher hills to enjoy, among other things, the freshening vigour of a western breeze and the sun-play on the blue ridges of the farther uplands, Farmer Barton overtook me on the road; consequently, through force of habit, I climbered into his wide-set market cart, and seated myself on the folded horse-cloth beside him. Travelling awheel with Barton is an experience in itself, far more enjoyable than our modern bustling means of transit.

Perhaps it is not the expedience of haste, and, on the other hand, it is not the perfection of personal comfort. Barton's mare is more or less a superannuated ancient, a pensioner, as it were, for faithful years if not for brilliant service. At one time, according to the farmer's reminiscences, she was skittish creature enough, but now her duties are limited to the draft of the master's cart. Hence our rate of progress is not inconveniently rapid; and as we slowly jolt along the yellow road which skirts the heath-set verge of the vale, my companion now and then pulls up to comment upon some particularly forward crop, or to emphasise, in merciless terms, some palpably careless farming.

Exchange of opinions, loudly expressed above the rhythmic click-clack of old Poll's hoofs and the rattle of wheels on a stony road—which incidentally draws from Barton a trenchant remark anent District Councils in general and our own in particular—is characteristic of my rides with the farmer. Allusions to the weather and its prospects—the inevitable introductory to all our country small-talk—bring us to our discussions. To-day Barton says nothing of young Grimutt; I suspect the lesion has healed somewhat. However, he has secured a new lad, who, in Barton's opinion, "is a real tidy worker, but just as silly as a moonstruck calf." This means, I gather, that the boy in question needs practical demonstrations in all the various jobs he is put to do. The descriptive reference, I surmise, has some remote connection with the obsolete theory of lunar influence upon human intellect.

"It's difficult," the farmer continues, "to get a useful boy nowadays. They're not fit for anything when they leave the school. Years back the lads helped their fathers in the fields on Saturdays, and consequently, when the time came for them to go on the farm for good, they knew summat of its ways. Now they walk three miles to the golf links to caddy and loaf atween whiles till they baint fit for nuthin'. They keep 'em too long in the schools nowadays, too. If I had my way, I'd let 'un lave school at twelve and put 'un straight into the fields—to clear the school 'fiddle-faddle' out of 'un's head. What's the good of schools and eddication if they can't provide the farm with hands? Why, children never be taught to use their hands."

This is typical of Barton's attitude towards our present-day schooling. I know that he is not a scholar—his university has been that of the fields; and I know that he would regard the diurnal rotation of the earth as pure heresy, because his duck pond is always full. So inwardly I debate the wisdom of a rejoinder; my friend's educational theories are entirely utilitarian. However, I am eased from the responsibility of defence by our arrival at the Gate Farm beyond the larch wood, where the desolate state of the hedges gives occasion for pulling up.

"There," says Barton, "there's neglect, if you like. Hedges ha'nt been plashed these three year, and the bottoms not cleared for six, I'll wager. Some folk seem to think that a hedge only stands for hurdling stock or marking a boundary. That's your modern farmer."

"But," I venture, as one whose knowledge is avowedly superficial, "surely the scarcity of hedgers has something to do with this neglect?"

"You're right, master," he admits. "But it's all part and parcel of the change which has come over

farming. I ha'nt got a hedger on the whole of my farm—not what you'd call a hedger, mind you—and I doubt if you could find one within the four bounds of the parish. Years ago I had a man working for me, who came out of the west country, and he was the best hedger I ever set eyes 'pon. In those days the hedges on the Home Farm were like wattles, and not a rabbit could get through 'un. But you can't find a man who can hedge like that now in a day's journey, and it's just the same wi' thatching."

"But," I rejoin, "why not train hedgers and thatchers? Apprenticeship is necessary in all handwork."

"Train 'em!" snaps Barton testily. "Train 'em! Would 'ee train the Grimutt lad? How can 'ee train 'em if they don't come to the farm? It's bicycles and cigarettes and the school 'fiddle-faddle' nowadays. Hedging and thatching and ditching baint good enough jobs for 'un. Why, the schools reckon to train 'em, don't 'un? And what's the upshot of it all? When they leave school they can do anything but use their hands. They want to be clerks and insurance collectors, and that's 'xactly what the schools train 'em to be."

Answering to the rein grip, Poll jogs onward. I mentally pigeon-hole this tangled problem for future consideration; Barton points me to a field of mangel which, in his judgment, is as forward as any seen by him this season.

* * * * *

Barton is greatly concerned that his cowman, one Matthy by name, is partially disabled some days by attacks of acute indigestion. In his mind the addiction of the rural constitution in general to such diseases is a most serious symptom of imminent disintegration. Back in the old days, he says, there was little call for the doctor in the country, except in cases of extreme illnesses; and with a fulsome and generous philosophy he lays the cause of all our modern rural ailments at the door of degenerate dietetics.

"Why, bless me soul," says he, "there's Matthy always a-groaning and ailing—always summat wrong wi' 'un—some days he can't straighten hisself, and others he's got sich pains in his chest that he can't milk. And it's all through the vittles he eats, to be sure."

Then follows the descriptive memories of old times that I have heard with interest times and times before: how the good country folk baked their own bread, and made wholesome cheeses, culled vegetables freely from the well-tilled garden patch, and nurtured pigs that were a very sheet-anchor in seasons of hardship. For beverage the labourers enjoyed a bottle of good cider, or a draught of wholesome, farm-brewed ale. Nowadays they devour the product of the steam bakery, eat cheeses made but a few months before in Canada; foreign meat usurps to a large extent the place of nutritious vegetables, and the art of brewing has nearly passed into oblivion; chemically-evolved liquids take the place of the old-time drinks; and the multiplicity of tinned and bottled eatables brings the old philosopher to the verges of his vocabulary.

He remarks disgustedly that every grocery store is three-parts full of such foods. No wonder that disease in many forms is rampant when our palates are so degenerate and our stomachs so ill-nourished. In the old days a man's diet was such that he could work comfortably and well, and I know full well that with Barton the labour worth of a man covers a multitude of spiritual lapses. He classifies his labourers according to muscle and bodily activity; he accepts stupidity as an unalterable heritage, for in his youth he knew the men whose days were the perfection of the simple life.

It is not at all unnatural that the discussion of disease turns my companion's thoughts to the medical inspection of school children. I believe that if he could forgive our country youth the grave crime of developing such physical deformities in the way of short sight, adenoids, bad teeth, and such like bodily failings, he would condone the waste of public money upon their detection and recommendation to parental consideration. He fails to see, in common with many good people, where the expenditure is justified unless more money be spent upon the treatment of the cases detected.

It amuses him greatly that the leading hope of his cowman's family must needs wear spectacles. In Barton's days the diseases to which early youth is heir were rare and lightly considered; their remedies were rudely similar, and ill conditioned. I know something myself of these old-time remedies through the veterans of the parish; and in fact I am assured that old Mary Raddle, who is now slowing through her ninth decade, would gladly mix me a herbal potion for any disease I might choose to recount to her. And I know that Barton secretly holds to the mystic virtues of wayside herbs, and I am not quite dispossessed of the idea that the cowman's acute indigestion may not possibly be complicated by some herbal decoction prescribed by his master.

I am not quite sure whether Barton would not pin some faith to a midnight invocation over a wild-wort brew in the event of extreme illness; but I do know that his simple, country-moulded mind cannot appreciate the benefit of medical inspection of children attending our elementary schools. He says emphatically that it is a fad, and that there is too much faddism in these days. He is right. Everyone seems to be experimenting in the quest of new ways of doing things; they solve difficulties by creating others. If one man announces his convictions that potatoes should be peeled before they are planted, another rises with an amendment; each secures supporters, and at once the absurd theory gives birth to two conflicting schools, who go on wasting the country's time by attracting attention to their arguments.

Thus the discussion proceeds until we reach the parting of our ways on the hill top. I descend to the rough bridle-path that leads homeward through the vale to idle awhile in the solitude of the wind-bent pines, and to ponder betimes the philosophy of my farmer friend; and,

> "With dun-red bark
> The fir trees, and the unfrequent slender oak,
> Forth from this tangle wild of bush and brake
> Soar up, and form a melancholy vault
> High o'er me, murmuring like a distant sea."

Sketches of Country Life. By Edward Step. (*Sampson Low, Marston, and Co.*)

Any book which encourages the jaded townsman or the bored countryman to betake himself to open air Nature study is to be commended. This book, which is handsomely enriched with a vast number of first-class photographic plates, should encourage and stimulate many to cultivate the habit of observation and study of outdoor life. Few people believe that the elm has flowers, yet even Londoners can test the fact for themselves at the right time. Mr. Step ranges over a wide area, but is always interesting, whether dealing with the habits of pneumatic fishes or the habitat of the strange fungus called "vegetable beefsteak." A scout-master would find the book invaluable. A hint is given to the biological collector that a cylinder of napthaline introduced into a specimen case will give a fatal kind of cramp to the book-louse (*Atropos*).

Back to the Land.

THE EXPERIENCES OF A NOVICE.

" It's oh, for a patch of land!
It's oh, for a patch of land!
Of all the blessings tongue can name
There's nane like a patch of land!"

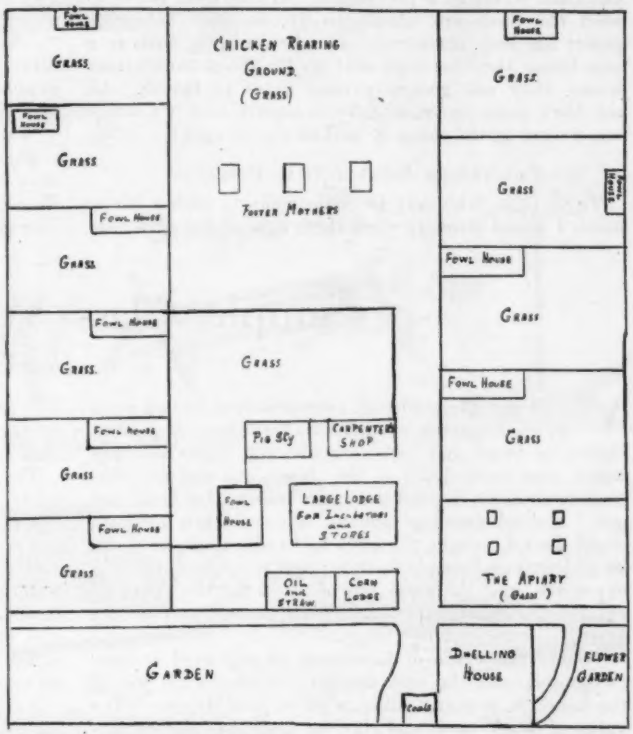
Wise after the Event.

IF there is a virtue more than any other needed for a novice, it is surely the one of patience. Experience of city life, with its bustle and rapid action, naturally makes this life appear to move slowly. One has to wait for results—there are no quick returns in this business. At present more money goes out than comes in, and therefore there can be no rest until the tables are turned. Of course, much of the work is at present experimental—it is enough if one gets through the first year without many serious mistakes, and laying the foundations for the coming years to rest on. When I look round and see the improvements made, I feel that all the labour and trouble cannot have been wholly wasted. To any one starting in a similar manner to myself I would say, commence in the early autumn. By my starting late in March I missed the most valuable period of the whole year. This fact accounts for the present state of my poultry pens. All my pullets for laying were hatched in late April and the following months, and consequently they are not laying now when eggs are easily sold for twopence each. I have over a hundred of these pullets, all in splendid condition, and unless they start laying early in December I shall be much surprised, not to say disappointed. Then, too, if your chickens are hatched late you are not ready for the next breeding season, which should start not later than Christmas. It will surprise many, who are not acquainted with the chicken rearing industry, when I say that in the early months of the year—that is, quite up to Whitsuntide—the higgler, or chicken fattener, will give 3s. 6d. for a chicken three and a half or four months old. This is the " spring chicken," for which there is such a demand in London during the season. The higgler pays 3s. 6d. for the bird unfattened; he has to fatten it, which takes about a fortnight; kill, pluck, and send to market. What the housewife or hotel-keeper pays for this delicacy I am not prepared to say. To supply this demand means hatching in quantities in January and February, or you lose your best price. When my chickens were big enough to sell, the price had fallen to 2s. 6d., and even to 2s. In fact, most of my chickens were sold at the latter price. So it will be seen that I am only barely in time for the next season, and that I was unlucky in the last.

One experiences similar difficulties in other departments. Seedtime and harvest have their stated times; and if you do not avail yourself, through ignorance or neglect, of an opportunity to do either, you may lose or spoil a crop. A novice is, therefore, in mortal terror lest he omits to do something which may be fruitful in months to come. An expert, on the contrary, can lay his plans far ahead, and, with luck, knows pretty well how he will stand.

Frost and Snow.

On frosty mornings, with the ground hard under one's foot, and the sun shining, country life is nearly at its best. The cold nip gives zest to all outdoor work, and everything goes merrily; but when the snow comes the tune changes. We had quite three inches of snow in the second week of November, and although it only lay on the ground two days, it made the work most unpleasant. Fowls behave curiously in snow: it frightens them, and they try to fly over it. This action generally lands them further into trouble. In the meadow several flew into a holly hedge and were with difficulty got out—in fact, they were there a whole night before they were discovered. Whilst talking of the holly, upon which we were rather priding ourselves in view of Christmas, as there was a good sprinkling of berries,



we found that on the day the snow fell the birds completely cleared the lot, so that our festive table will be minus that seasonable decoration. I find that it is the custom to gather holly some weeks before Christmas, stick the branches in the soil, and protect them from the birds. We are wise again—after the event!

Wild Nature.

Now the winter has come, and food is scarce, several hundred birds, chiefly sparrows, assemble both morning and evening in order to share the good things provided for the fowls. It is quite certain they know the hour, for at other times they disappear. For several months I had a pet robin, who was so tame that he came when-

ever I whistled for him. He was a favoured one, and was given many a tit-bit. Unfortunately, his curiosity led him into an outhouse, where he nibbled at the bait in a rat-trap, and he got his leg broken. On releasing him he got out of my hand, otherwise I should have tried an experiment of splintering the limb. He has never turned up since, so I suppose he has come to a bad end.

Moving Fowls at Night.

To-night I have been moving some twenty pullets from the field to the home pens. To house these pullets the incubator house, which proved so unsuitable for this purpose, has now been turned into an additional fowl-house. I divided it into two, the larger portion for the birds and the smaller for a tool shed. It makes a first-class house—in fact, the best on the holding—and can accommodate thirty to forty fowls. A good large grass run is attached. It is a cold, dreary job, moving birds at night. I trudged across the meadow, carrying a lantern and a crate to put the birds in; and as the wire netting in the new run is only five feet high, I had to cut their wings as a precaution. If one wing is shortened the birds are unable to fly, as their balancing power has been destroyed. If, when moving birds to a new house, they are kept shut up for about twenty-four hours, they will generally roost there in future. All my fowl pens are now fully occupied, and we await our reward in the shape of baskets full of eggs!

Preserving Intellectual Pursuits.

To all those who may be contemplating such a life as mine, I would strongly warn them against the idea that they can work a small holding such as this and continue at all times to look a gentleman. The danger is that one is apt to get lax in this as well as in all intellectual pursuits. This has to be fought against, for although much of the work is sordid and unclean (the pig-sty has to be, and is, cleaned out often), there is no reason why the finer senses should be extinguished. One's hands certainly tell a tale, but there are such things as gloves. The old suit of clothes—the older the better—need not be worn at meal times; although it needs a struggle, when tired, to make one's self fit to sit with decent folk. I write like this as a warning to myself as well as to others. For it is very easy to *descend* to the soil, and easy to drift into such a state of being that your own mother would hardly know you. As to literature, I frankly admit that I have found the work so absorbing, so fascinating, that I am ashamed to say my literature has been nothing higher than the daily paper—this I read more thoroughly than ever before, as it is the only vehicle from the outside world—books on gardening, chicken rearing, pig fattening, and such like. But the time, I hope, will come when I shall be able to let things run a bit by themselves, and allow myself to dip once more into more civilising things, and to allow my thoughts to dwell upon something even as ennobling as tilling the soil, "bringing on" porkers, and feeding for eggs.

With the Editor's permission I am giving this month a plan of the home fowl pens, outbuildings, etc., which may be helpful to any one laying out a poultry farm. Besides these runs there are three others in the meadow. The grass runs are about ten or twelve yards square.

Simple Class Woodwork.

BY F. E. MELTON.

YEARS ago all handwork exercises were looked upon as kindergarten occupations for infants and lower classes in boys' and girls' schools, and those schemes which were carried out in the classrooms had no practical application beyond a certain training for hand and eye. Manual training centres, where picked children could attend, taught the boys to handle tools, to make small joints and simple models; but the equipment was expensive, and therefore out of reach for the ordinary child in the classroom supported by the ordinary School Board.

To-day the value of handwork of any kind is fully recognised, and the wise teacher introduces the use of the hands in as many subjects as he possibly can. The value of paper, card, and clay for modelling and experimental purposes no one can deny.

Practical work is regarded as the only valuable system; but however wise the teacher may be, and however willing his Council may be for him to exploit his wisdom, expensive equipment for the teaching of woodwork in the classroom still stands in his way. The riddle is reduced to this: How am I to teach any form of woodwork when my stock allowance will not run to buying expensive tools and apparatus, and my Council cannot find sufficient funds to make grants all round?

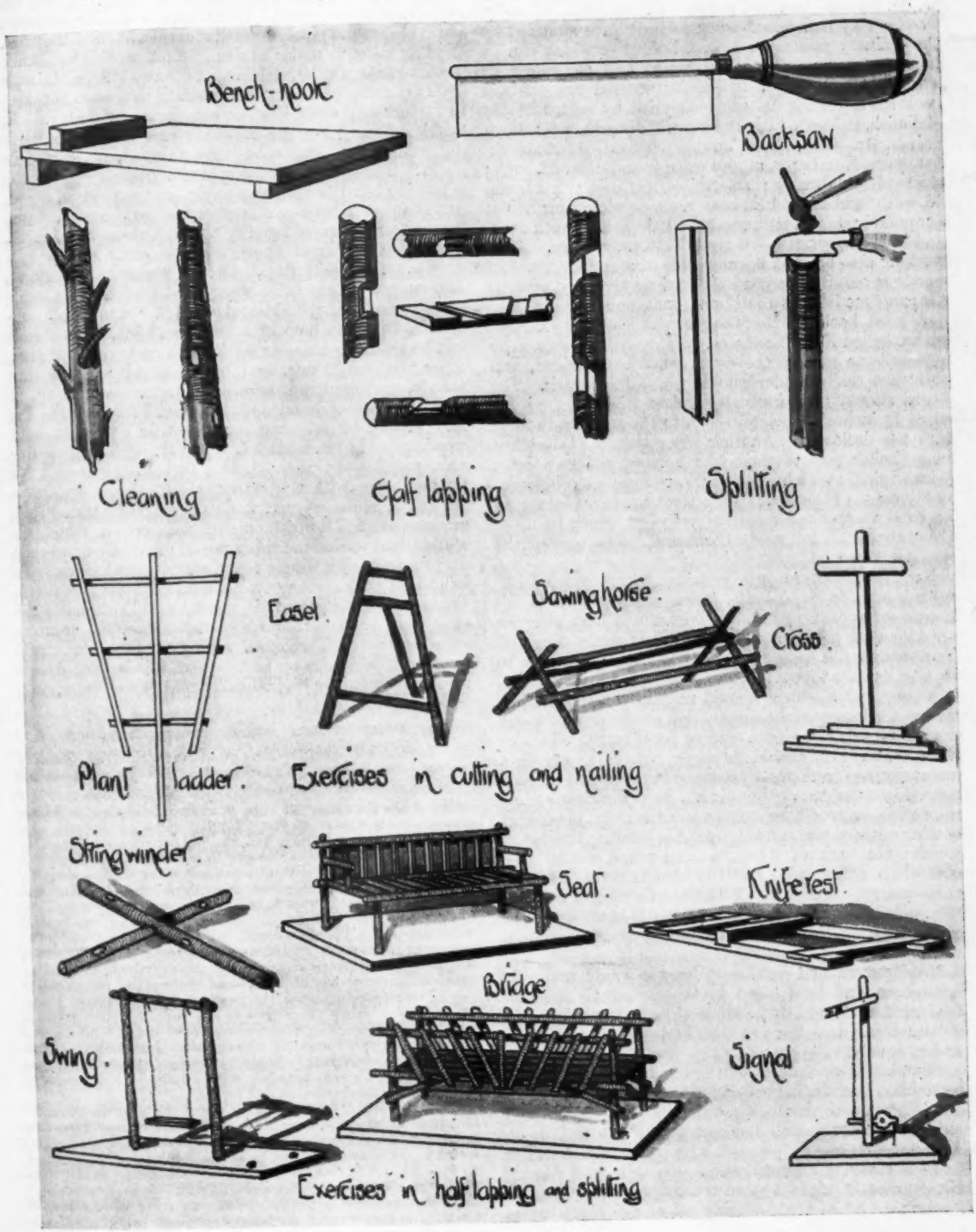
In a report of the Board of Education referring to some schools where light woodwork had been attempted, these words occur: "... the knife was the only tool supplied to each boy, the rest being used as class tools. This naturally led to too much work being attempted by the one tool, and ... it is little matter for surprise that ... the results were unsatisfactory."

The problem of equipment attacked in this meagre spirit cannot be expected to give results of any educational value whatsoever.

Yet there are forms of light woodwork which are cheap and inexpensive. They may truly be criticised as insufficient and without much scope; but they provide familiarity with harder mediums than paper, cardboard, and clay, and teach accuracy and observation in an equally powerful way, whilst the range of models is by no manner of means inconsiderable.

Natural woodwork and stripwood are forms of manual training which require but few tools, and but a small outlay in the way of purchasing wood. In natural woodwork, boughs collected from willow, hazel, ash, and other straight-growing trees are used. The boughs are obtained whilst green, and are then stored in bundles of approximate thicknesses, and in lengths of from one to two feet. When dry they are trimmed off and straightened, and then used for the formation of the various models. In the country the hedge sides will provide ample material, whilst in towns and cities the public parks during pruning time will always supply the demand.

In strip woodwork, strips of satin walnut two feet long, half an inch wide, and one quarter of an inch in thickness are bought ready prepared—that is, planed on both



SIMPLE CLASS WOODWORK.

sides. These strips can be obtained from a contracting firm very cheaply, at prices ranging from 3s. 6d. to 4s. 6d. for one hundred strips. In the place of stripwood a very convenient wood to work in is supplied by the ordinary plasterer's lath, a bundle of which can be bought for 1s. If the twigwood and stripwood be worked side by side, the tools required are six-inch back saws, costing 1s. each, supplied by such firms as Melhuish, Holborn, E.C., or Nurse, Walworth, S.E.; sloyd knives, 1s. each, from any educational contractor; hammers, Number 0, at any price from 3d. to 8d. each; steel rulers, 9d. each; small files, 4d. each; bradawls, 1d. each, and small bird-cage nails or gimp pins at 6d. per pound; but in stripwood the knife is not much used, and in twigwood the saw is almost unnecessary. Yet, working side by side, a knowledge of a greater range of woods is obtained beyond the variety given by working the same models in two differing materials.

A good book on twigwood is published by O. Neumann, called *Easy Woodwork*.

Boards to protect the desks must be provided, and these are easily made from beech, ½ inch thick. The board should be 9 inches to 1 foot in length, with a piece 1½ inches deep screwed on to the under side to fit into the desk slot. Another piece should be fastened in a similar way to the upper surface, 8 inches long, ¾ inch thick, and 1 inch in depth, to form a sawing rest, or "cleat." If the desk is not level, another piece must be fixed to the under side of sufficient depth to make the "bench hook" quite horizontal. The cost of the whole is about 6d.

Each boy, then, must be provided with a bench hook, a back saw, or sloyd knife, if one scheme alone is followed—or a back saw and sloyd knife if both schemes are taken—a hammer and steel ruler; whilst files and bradawls should be obtained in sufficient quantities to be used as class tools.

A progressive scheme should next be drawn up, with an eye always upon the application of the exercises and models to other subjects, and to local surroundings or needs. Drawings should be made before the exercises are attempted, and great accuracy in all details insisted upon from the very beginning. As difficulties sprang up, so lessons would be given upon the grain of woods; cutting with, across, and against the grain; the sap of woods; the bark of trees; annual rings, and so on—collections being made for the museums to illustrate these points. Where sloyd knives are used, a warning should be given that all cutting must be done upon the bench hook, and away from the body, or nasty wounds may be the result.

Measurement and cutting of lengths would naturally come first, and be applied in the arithmetic lessons; for instance, on addition, subtraction, and fractions, the cutting being done, for practice, horizontally, vertically, and obliquely.

Next in order would come the fitting of these lengths by nailing, introducing the use of the hammer and bradawl (with lessons on the construction of the tools used) for the making of such exercises as the letters T, L, F, A, and models of a simple cross with steps, a plant ladder (oblique cutting), an easel, and a sawing horse. Simple history models might be constructed, and the use of a file introduced in the rounding off of the sharp edges and square ends.

Then would follow the fitting of lengths by "half-lapping," using as a fresh tool the sloyd knife for cleaning between the saw cuts. Mark off in the required position the width of the wood which has to be jointed on, and, just inside the marks, cut down to half the thickness of the wood. Go through a similar operation with the second piece of wood, and then fit them together, nailing them to make all firm. Such models as a knife rest, a string winder, a swing, a railway signal, and simple railings could be made; and then, if twigwood is taken, a further step should be made to bring in splitting and cross nailing. For the following exercises in the place of split twigs, stripwood may be used, or plasterer's laths. The twigs will split down quite easily if the knife is placed from edge to edge of the piece of wood, standing vertically and across the sap centre, being pressed or hammered gently through the entire length. Models of a pair of steps, a rustic chair and seat, a bridge, an umbrella stand, a flower basket, a book stand, and many others, make very good and suitable exercises; whilst if the sides of wooden boxes can be obtained, with the help of a brace and bit, little stands can be made for those articles which rest upon uprights. Thus the seat, chair, and bridge could be sunk into stands, and rendered more permanent. By the aid of such schemes of handwork, children in Standards IV. and V. can be prepared for a further course in light woodwork in Standards VI. and VII. with prepared or unprepared wood from $\frac{3}{16}$ to ½ inch in thickness. No further tools, with the exception of a small square at 7d. and a chisel at 9d., would be required; and such models as tooth-brush racks, nail boxes, matchbox stands, and washstand tidies would gradually be worked up to introducing simple tenon and dovetail joints. To follow out such a scheme a book called *Light Woodwork*, written by H. Bedford, is most helpful, although the equipment is rather more expensive than the ordinary class teacher will require. Many hints upon simple woodwork which may be adapted to class needs are given in a monthly journal called *The Woodworker*, published at 6d. per month.

The British Journal Photographic Almanac, 1911. Edited by George E. Brown, F.I.C. (London: Henry Greenwood and Co.) 1s. net and 1s. 6d. net.

The *B.J. Almanac*, as this annual publication is known among photographers of every English-speaking country, this year celebrates its Jubilee, and the publishers may reasonably point to its appearance as a record in technical journalism. The *Almanac*, which in its current issue is a bulky volume weighing 2¾ lbs., had its beginning as a wall or sheet calendar, which was presented as a supplement to the *British Journal of Photography* in the year 1860. The five succeeding issues took the form of waistcoat-pocket volumes, containing such hints and brief information as sufficed for photographers in those days. The issue was enlarged to crown octavo size in the year 1866, since which date the *Almanac* has shown a steady increase in its number of pages, corresponding with the modern development of photography. For many years past it has supplied photographers with complete working instructions in the modern branches of the art, and has recorded in orderly fashion the technical progress made in each year. In the present volume a review of its past history is given, together with a number of portraits of editors and publishers, past and present.

Photographers "from China to Peru" look to the *Almanac* for practical information and for particulars of new apparatus and materials, and certainly the text and advertisement pages, which in the present fiftieth issue reach a total of 1,346, leave no room for doubt that the amateur or professional worker finds the volume a veritable "Enquire Within Upon Everything." The advertisement pages compete with those of the text in interest, as they contain the latest announcements of practically every photographic firm, and the full price lists of a great many. Ready reference is provided to this great mass of information by the separate indexes, which are placed together at the end of the volume, and supply a key both to every item in the text and to every article advertised.

The Organisation of Juvenile Employment.

BY JOHN PERKINS.

THE DEMANDS OF THE PRINTING TRADE.

(*Continued from page 415.*)

THE forthcoming institution of agencies to assist our young people in the choice of employment does not seem to have been received with enthusiasm or eagerness by employers in the printing trades. With those among whom my inquiries have been made there seems to be no difficulty in obtaining apprentices.

To most firms I put the question, "Do you think the institution of Juvenile Labour Exchanges will be of assistance?" Only one manager replied in the affirmative, and he qualified his answer with this addition, "For certain classes of juvenile labour." One firm employing nearly two hundred hands prefers to take the recommendation of customers and employees. Another employer in the suburbs notifies any vacancy to the neighbouring schools, and invariably succeeds in getting what he wants. Another, in a country town, advertises in his own weekly newspaper, and thus has "a good number to choose from, and, of course, selects the best." So it is all along the line: vacancies for boys in the printing trades are easily filled, either by recommendation, from the schools, or by means of advertisement.

What is more, the employers—politics apart—are very conservative in their methods. They have a ready means of finding the material they want, and they are not anxious to take advantage of any new organisation in the shape of an agency.

From what I have gathered up to this moment I have a fear that Juvenile Employment Agencies will not be an immediate success. The employers especially have to be convinced of their efficacy. As one said to me in another connection: "Employers cannot afford to be philanthropists. They must get the best labour they can for their money. If the agencies can be so controlled that boys and employments are exactly suited—well! But that will call for an exact knowledge of the requirements of the occupation and of the aptitude and character of the boy. The former can be obtained comparatively easily, but for the latter something more than a central office and an administrative staff will be required. The danger is that the whole system will break down under the weight of its own machinery.

IF ANY ONE CAN PREVENT THIS IT IS THE TEACHER,

who must be ready to give expert advice as to the suitability of the boy for an occupation and the suitability of an occupation for the boy. This will demand a more and more detailed *inside* knowledge of trade requirements and of trade conditions on the part of the teacher; and I do not despair but that teachers will be led more and more to prosecute inquiries into the business world, and so be ready to give the older children the advice that they require.

It will not be easy to put a finger on a boy, and say with authority, "Thou art a painter," and on another, and say, "Thou art a printer," and so on; but at least it will be possible to say this one or that one is *un*suited for any particular calling. The failures in life are often those who have entered employments for which they are absolutely unfitted. At least we can save these. A doctor can say with some degree of certainty if our physical constitution unfits us for this or for that vocation, and a teacher should have sufficient knowledge of his pupils' capabilities to form a judgment in the light of his mental attainments.

I have just had the pleasure—and pain—of reading about a hundred compositions by boys of twelve and over on the familiar title, "What I hope to be," and I have been struck by the penchant which boys show for work for which they show the least aptitude—so many clumsy boys wish to be engineers! So many, whose English is not classical, desire to be clerks—or teachers! Here, in any case, the teacher can use his influence to advantage.

To return to our printers. All employers, as we should hope and expect, do not estimate the standard of elementary school education so low as in my last paper I indicated was general. One large employer, asked if he found boys deficient in the elements of instruction, but possessed of a smattering of many subjects, said, "My experience is totally different." But even this is qualified by inference, for when replying to the query, "*Can you suggest any method in which the present education in elementary schools may be improved?*" he said, "If it is a case of a boy having to leave school at the earliest, reading, writing, and arithmetic, thoroughly ground in, are better than having a smattering of French, science, chemistry, and music. This applies to the average lad. There are, of course, exceptions. I know where a master would soon find lads who are above the average, and it would be a pity to restrict them to the primary subjects; but I am speaking, you must understand, broadly."

Here, as in many other instances, I have been impressed with the general want of sympathy with the subjects we school people teach for their humanistic and educative value. I have long felt that we should

TAKE THE PARENTS AND THE PUBLIC MORE INTO OUR CONFIDENCE,

and explain in everyday language the why and the wherefore of the various sub-divisions of the curriculum. Certain it is that there is a general tendency in the workaday world to throw scorn on all except the utility subjects—that is the three R's. But a warning here. Before becoming evangelists of the New Education we must see that we know where we are ourselves.

It is sad to find almost absolute unanimity as regards the lack of ambition on the part of most of the boys In response to the question, "*Do the lads show any desire to continue their education?*" I invariably found that only a small minority of the boys attended classes. The employer whom I found most inclined to look with favour upon the present-day lad, said categorically, "I should say, 'No.'" Another said, "I have not noted any keen desire. They seem to prefer to be out." A third thought that boys were not anxious to gain instruction. So it is in every case, and yet, in many instances, the firms give time off and pay the class fees. I must add the ironical tilt of one who said, "And

yet the elementary school system has been in vogue nearly forty years." Of course it is easy to answer the gibe, but it is of thought, and uttered without being answered.

It is encouraging to find that the idea of compulsory continuation classes is held in general favour, and that employers, as a rule, could make it possible for their apprentices to attend, especially in the early years. In one or two cases, however, there is a tendency to gird at the character of instruction given in technical classes, and one often hears that the lad has to fit himself to the instruction, whereas, of course,

THE INSTRUCTION SHOULD BE FITTED TO THE LAD.

Teachers in continuation classes, in evening schools, and technical institutes, will be compelled ere long to inquire of the employers and of the students, "What do you want?" and then to set about giving them what they want, and not what we, in our ignorance and self-sufficiency, *think* they ought to want.

One employer says, "It would be impossible to do as you suggest (allow 'time off' in the day to attend classes). What would be the use of taking him away from a shop where he is doing practical work directly under the supervision of a mechanic, to let him have time off to go to a school where one man would perhaps have charge of a dozen lads?" A similar idea rankles in the minds of many who are willing to give facilities for attendance at classes, and this seems to indicate that care must be exercised that the technical instruction should be made to *supplement* and not to *supplant* the practical work of the shop.

For the time being I must be done with the printing trade. No trade probably so closely retains the apprenticeship system in all its glory, and certainly no trade can be so easily adopted straight away by a boy who has attained reasonable proficiency in an elementary school curriculum; but yet oftentimes he is, at least, not so proficient as we should expect him to be; he is generally lacking in ambition, and he displays little desire for self-improvement. Home circumstances and general environment play their part, no doubt, to this end, but I believe the schools will become more and more the elevating influence in the future.

AN APPROPRIATE PRESENT.—There are few simple articles so universally appropriate and so easily procured for Christmas and New Year gifts as "Swan" fountain pens. They convey a sense of intimacy or formality exactly corresponding to the relationship existing. They never overstep the line or fall short of it. For instance, to members of one's family they are practical and affectionate presents; to one's doctor, lawyer, clergyman, teacher, host, or hostess they convey regard and recognition for kindnesses or attention; to business friends they are a useful souvenir; to one's associates in work, to the book-keeper or representative, they speak of a friendly interest. The "Swan" may be selected in simple or rich and elaborate form, at prices from 10s. 6d., 15s., 21s., to five or twenty guineas, and at almost all intermediate prices. All "Swan" pens are guaranteed to give satisfaction, and are well known to last for years. How much better is a pen which will be carried and used daily than many another form of gift which can claim but little usefulness? A less expensive pen may be secured in "Cygnet" stylos at 5s., "Longshort" stylos at 3s. 6d., or "Gnat" stylos at 2s. All prominent stationers keep an assortment of "Swan" pens, and dealers or manufacturers will gladly see that the recipient is perfectly suited with a comfortable writing nib. An illustrated catalogue will be sent, post free, by the manufacturers, Mabie, Todd, and Co., 79 and 80 High Holborn, London, to any applicant.

SWISS HOTEL SCHOOLS.

PRACTICAL TRAINING FOR HOTEL-KEEPING.

BY JULIAN GRANDE, F.R.G.S.,
(Author of "*The Bernese Oberland in Summer and Winter.*")

FROM time to time there is a great outcry in this country over the fact that so many of the head positions in our leading hotels are filled by foreigners. Why should they not be filled by Englishmen? Another perennial subject of lamentation is that so many foreign waiters should be employed in England. Are not English waiters satisfactory?

The answer to these two questions may be partly found in the schools existing in Switzerland—specially for the training of those who wish to become hotel-keepers. From the courses of study laid down for pupils at such schools the kind of training may be inferred which the best hotel-keepers in the world—which the Swiss admittedly are—think necessary for aspirants to their calling. The Swiss never for a moment imagine, as some English people seem to do, that anybody can keep a hotel. Indeed, they look upon hotel-keeping as a distinct calling, requiring fully as long a training and as many special aptitudes as the medical, legal, or any other profession. They know perfectly well that the English are not, as a rule, clever hotel-keepers; and they ascribe this chiefly to the fact that they do not take hotel-keeping sufficiently seriously—do not realise, in short, the immense amount of knowledge and the very long experience, both of men and business, which must be acquired before any one can hope successfully and profitably to manage a large hotel.

During the last year I have had much to do with Swiss hotel-keepers, and have thus learned a great deal about hotel-keeping and its difficulties which I did not know before, and which many people never have an opportunity of finding out. I cannot say how many successful hoteliers have not told me, without showing the least false shame about the fact, that they were once waiters in other hotels, often in a part of the world where the experience would be very different from that which they could gain in their own country. In fact, a surprising number of the best and most successful hotels in Switzerland are managed, and sometimes also owned, by ex-waiters. And since in hotel-keeping this country probably sets the standard to the world, it is safe to say that this alone is a strong argument in favour of the long practical experience of hotels which must be acquired before any one can undertake successfully to manage one.

All Swiss hotel-keepers, I admit, have not risen from the kitchen, as it were, and I could mention one or two notable exceptions to the general rule that, whoever wishes to manage a hotel successfully himself, must have actual personal knowledge of the working of every department of the hotel-keeping business. But this is the principle acted upon by all hotel schools—that the successful hotelier must not only know how things should be done, but must also know exactly how to do them himself. He must, for instance, not merely be able to say to his staff, "That fowl is not properly trussed," but he must himself be able to show them how to truss it.

Most people conceive of a hotelier as a smiling, per-

haps somewhat pompous, individual in a frock coat, who never seems to have anything very particular to do, except to welcome coming and speed parting guests. But it is only after a long period of years that he has been able to afford to be pompous, or to wear a frock coat; and if he is a good hotelier, his apparently having nothing particular to do beyond looking elegant and beaming on his guests is probably as deceptive as most other appearances. Doubtless there was once a time when he wore a white cap and apron; another time when he wore evening clothes all day long. In short, before the frock-coat stage was reached, he has played many subordinate parts in the kitchen, cellar, dining-room, office —indeed, every part of a hotel. The English hotel manager too often, in the opinion of the Swiss, wants to get straight away into the frock coat, and look smiling and pompous.

Not long ago I was talking to the manager of a hotel which is known by name to every visitor to Switzerland, and is admittedly one of the best and best-managed in the whole country. He told me that he spent three years "in the kitchen," as he put it; and he did not consider it at all too long to master every detail connected with the serving of meals, the buying of provisions, the keeping of wines, etc. He instanced another hotel manager and proprietor, who is also at the head of one of the largest and best-known Swiss hotels, but who has not the practical knowledge of "the kitchen," and who had told him that he would give hundreds, even thousands, of pounds to possess it.

A manager such as the one to whom I was talking is hardly seen by the guests staying in his hotel. He does not trouble his head about what is called the "reception," or about what the guests do. He stays in his own well fitted-up office, and is fully occupied all day long with banking business, advertisements, and such matters. Such a man would scout the idea of any one jumping into hotel management. In short, he would probably say that, so far from the calling of a hotelier requiring less training than most other occupations, it requires far more. Consider, for instance, he would argue, how much knowledge is required to attain the highest pitch of skill in hotel-keeping—a pitch, it may be said, to which few actually do attain. The successful manager of an absolutely first-class hotel, with an international *clientèle*, such as most first-class hotels have, must not only be able to supervise the financial part of the business—which, in the case of a large establishment, is very considerable—but he must understand enough about the world in general, and the social conditions of the chief nations, to be able to avoid taking parties, as if he does so he cannot possibly keep his hotel first class. He must know whom he should refuse, and how to refuse them; and, above all—and this seems to me the last thing the cleverest hotelier learns—he must understand enough about the Press of the different countries to know the standing of the different papers. Otherwise, he does what many hoteliers undoubtedly do —he wastes all or much of the money he sets aside for advertising. Only the other day the manager of another very well-known Swiss hotel, a man who was once a waiter in Ireland, said to me how difficult a matter was advertising; how hard it was to find out what papers were really the right mediums for a certain place, and for a hotel of a certain class.

Again, the march of events—a variety of circumstances over which no individual has any control—may tend to make the public crowd to one district and neglect another. Thus a hotel-keeper who is not constantly on the alert may one day find himself ruined. The world, or that section of it from which he once easily filled, perhaps overfilled, his hotel, has now taken it into its head that his particular spa or health resort is not so agreeable as some others, or that it is very delightful in winter, but impossible in summer. Or else the capricious public gets tired of the particular kind of amusements which, at its insistent demand, the hotelier has provided for it, at great cost and with immense trouble, and requires some other kind of entertainment. Or perhaps the hotelier has let too many Germans get into his hotel, and can consequently no longer keep his English *clientèle;* for no sensible Swiss hotelier ever attempts to mix Germans and English to any great extent.

So in a dozen different ways it may very well come about that a hotelier who has not constantly been looking ahead—noticing in what direction the world is tending, and intelligently anticipating what the public is taking into its head to-day, or may take into its head to-morrow —may find himself, for instance, with a first-class hotel, which can only exist on high prices, in a resort to which no one any longer comes who will or can afford to pay these prices. There may be some places in the world with natural assets of such permanent value that the hotels can always count on a number of visitors sufficient to enable them to make a profit. But there are very few such places, and every clever hotelier must now watch the social tendencies of the world to-day exactly as a stockbroker watches the share market.

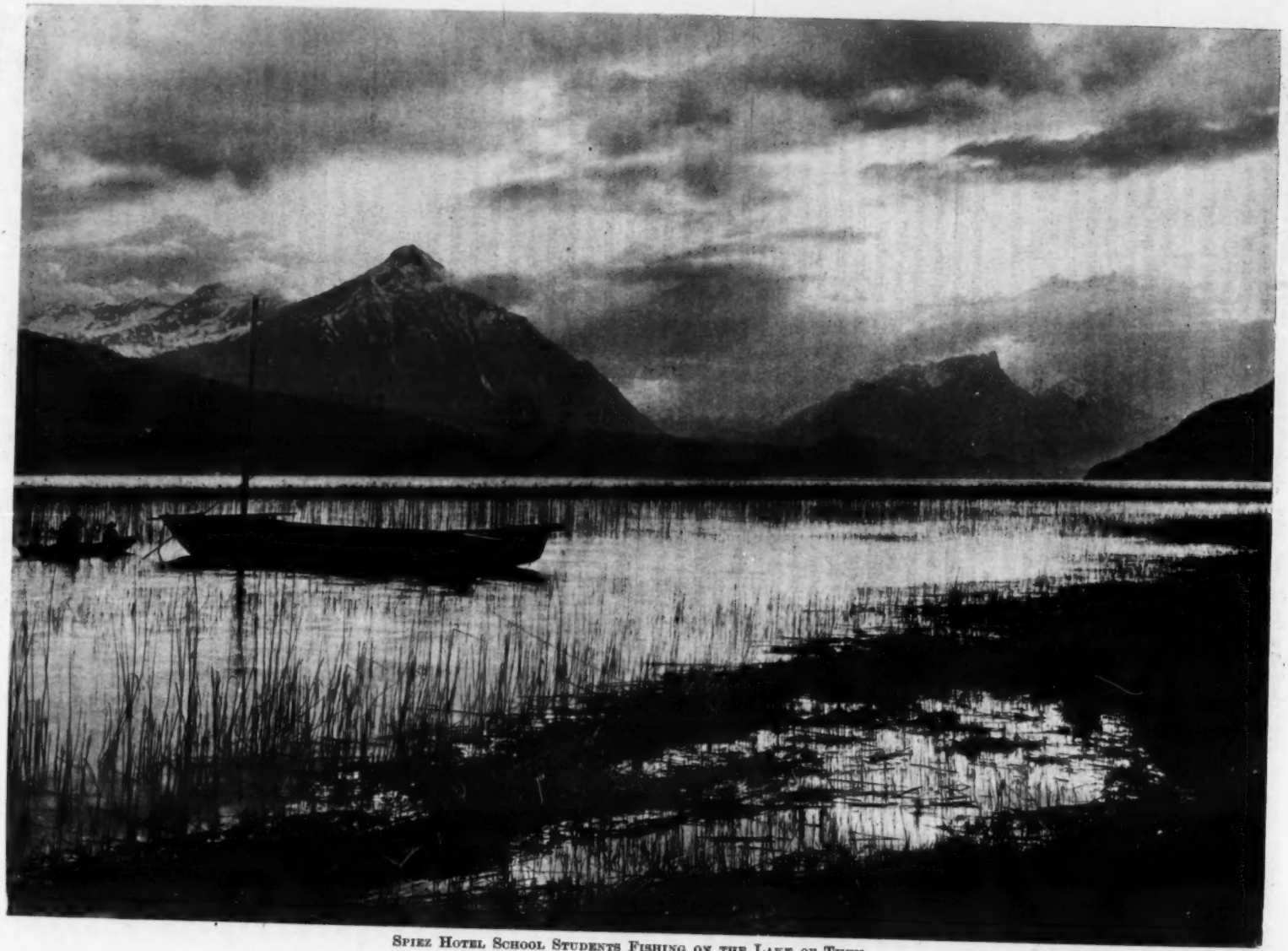
It will be seen from this how intricate a business is that of hotel-keeping; and as long ago as 1893 the Swiss Hotel-keepers' Association opened at Lausanne a Technical Training School for those wishing to become hotel-keepers. This institution is the chief school of its kind in Switzerland.

Pupils are received, not under sixteen nor over eighteen years of age, for a course of three years. The term begins on the 15th of September and lasts till the 15th of May, with a break of a few days at Christmas. The reason for this arrangement of the year is that June, July, and August are the height of the tourist season; and students can therefore during these months get practical training in some capacity in a hotel, either as boots, waiters, concierges, reception clerks, book-keepers, or in the kitchen department.

Other things being equal, Swiss citizens, especially the sons of members of the Swiss Hotel-keepers' Association, have the preference as regards admission to the school. Foreigners do not seem to be much encouraged. Of course the school authorities say that they have enough pupils of their own, and as the cost of the institution is borne by the Swiss Hotel-keepers' Association, it is quite reasonable that they should give the preference to the sons of their own members.

The fees charged for teaching, board, and lodging amount to £4, 16s. per month for Swiss citizens, and to £6 a month for foreigners. Swiss students in reduced circumstances are received at £2, 8s. a month.

The school is managed by a resident principal, who must be a married man, his wife being supposed to act as matron. There is a staff of resident masters, who each give twenty hours' teaching a week. There is, further, a staff of visiting professors, in particular for modern languages. Each language teacher teaches his native tongue, and no other. English, therefore, is taught by an English person. Besides the paid staff



SPIEZ HOTEL SCHOOL STUDENTS FISHING ON THE LAKE OF THUN.
(The peak in the background is the Niesen, 7,764 feet.)

there are a certain number of voluntary teachers—hotel-keepers, who give practical and professional instruction in certain branches of hotel work.

The subjects taught are many and varied. They include modern languages (French, German, English, and Italian), arithmetic, geography, Swiss history, "civic instruction," handwriting, hotel bookkeeping and also bookkeeping by double entry; the art of buying provisions, hotel service, deportment, and good manners, hotel correspondence, and sanitation. Lessons are also given in dancing.

As regards the languages, the hotel student is taught them from a purely commercial and wholly unliterary point of view; and I am certain that when he leaves the hotel school he has never heard of Bacon or Lamb, except in connection with the table, and a page of Elia or "Of Gardens" would be Greek to him. Nevertheless, he will be able to read and write an English letter well enough for his purposes; whereas it is doubtful whether as much can be said of an English hotel-keeper in regard to German or French correspondence.

In geography, half the time I found was devoted to the study of international railway communications, with special reference to Switzerland; also the shortest routes, fares, guide-books, and railway time-tables—in order that the future hotelier be able to answer such questions as tourists usually ask.

Great stress is laid on good penmanship, and our Civil Service handwriting is favoured. The different styles of writing a letter are not forgotten. For example, I heard it impressed upon students that, when writing to an English person, they must avoid flowery language, and also not pile one title on top of another—for instance, they were told not to write "Mr. John Jones, Esq."

"Bookkeeping" covers the different systems of foreign bookkeeping; the registration of guests; the various kinds of registers necessary in a hotel; how to keep a record of everything used in a hotel during a given time; and everything relating to office work in hotels.

A very interesting and very important part of the course of study relates to the "kitchen." The students, I observed, are carefully taught how hotel kitchens should be fitted up; all about the bakery and confectionery which adjoins the kitchen of every good hotel; and all about pantries, store-rooms, sculleries, etc. They also learn about the various kinds of meat—how the animals are cut up, the names, quality, and uses of the different joints and cuts. Similarly, they learn all about four-footed and feathered game, and when the different kinds are in season; all about poultry—how to tell when it is fresh and of good quality, and how to keep it till it is tender, but not till it is high; and also all about fresh and salt-water fish—the characteristics of each kind, and how it is to be served. Besides this, the pupils are taught all about everything else in connection with cooking—especially about the various vegetables and their uses, whether served as separate dishes or used as garnishes.

The pupils are taken from time to time to slaughter-houses, and are shown how meat is prepared; to butchers' shops, to learn how to order meat; and to provision merchants and markets, to inspect for themselves the articles bought for use in the hotel school.

The drawing up of menus of every kind and at every price is carefully taught. The menus include those for ordinary table-d'hôte meals, both luncheons and dinners; banquets, wedding breakfasts, ball suppers; and also for Lent and other special seasons of the year.

In another course of lessons pupils are shown how to clean knives and silver, and wash china and glass, and the different ways of laying and decorating a table, both for first and second-class hotels. They must also learn how to hand dishes and serve wines and liqueurs; how to serve table-d'hôte dinners, dinners at separate tables, large banquets, wedding breakfasts, and meals in guests' chambers. What impressed me about this school was that the students do not merely receive theoretical teaching, but practical demonstrations of how things should be done. A student in the daytime may be in evening dress, and take his turn at waiting at table, just as if he were a waiter in a hotel. The "professor," who sits at the head of the table, notes all his movements, clumsy or otherwise, and will tell him there and then whether he is waiting well or ill. If the latter, the "professor" will leave the table, and show the student where he is wrong by handing the dishes himself. The students are also taught something about the various peculiarities in the table manners of the different nationalities. For example, I heard them being told that English people are not accustomed to eat puddings with a teaspoon. Moreover, the students are not only trained in the school itself, but are occasionally sent out to wait at banquets and wedding breakfasts in the neighbourhood.

DONT'S FOR AUTHORS;*

OR, HOW SUCCESSFULLY TO STALK THE WARY PUBLISHER MAN OR EDITOR.

"A MAN may write at any time, if he will set himself doggedly to it," said Dr. Johnson. The younger generation is dogged to the degree of desperation; industry it has in plenty, sometimes ability; but there are many little DONT'S with which it cannot be expected to be acquainted. Young writers often stand in their own light by reason of their indiscretions. It is the object of the present paper to further their ambitions by giving sage counsel which, if followed, will ensure them against approaching the guardians of Parnassus by wrong paths.

It seems to be a necessary convention of letters to abuse, threaten, and despise the publisher. He is not all that he is painted. His watch-chain is frequently no longer, or thicker, than that of a cabinet minister. He even has his finer moments of enthusiasm, when he can see virtue in the work of an unknown writer. He is what no one has ever yet succeeded in discovering—a man of business, whose time has a distinct commercial value. Woo him, therefore, young authors, by making as few inroads into his precious moments as ye may!

Horace has laid down the axiom that beginnings should be simple, and a Frenchman has said that "*le beau est toujours sévère.*" With these golden thoughts in mind we may proceed to the manuscript. This should be type-written upon stout, opaque paper, measuring say 8 × 10½ inches. It is an advantage if it have a left-hand margin of from 2 to 3 inches. That shortens the typewritten lines and makes it much easier to read. Double spacing is the best sort of typing for MSS.

Do not fasten the whole manuscript together in one section. This means either an aching arm for the publisher's reader, or that he must read it at a table. "I

* With due acknowledgment to the *Book Monthly*.

refuse absolutely to read another such manuscript," said a reader recently, when returning one stabbed through its whole thickness with giant paper-fasteners.*

There is no necessity for young ladies to deluge their pages with scent. These pages may be forwarded to a reader who, like Napoleon, almost swoons at the thought of perfume. A manuscript so treated, and swathed in pink satin ribbon, was recently sent to a London publisher, and by him forwarded to a reader. After a few weeks had elapsed the publisher wrote asking for the report. The following is the reply he received :—

"Dear Mr. —— I am sorry not to be able to send you my report upon Miss X's manuscript as I have not yet read it. To be quite frank, it is so highly scented that I have to keep it in the tool-house. As soon as the weather gets a little warmer I will read it—in the garden. The same four walls cannot contain it and—Yours very truly. . . ."

Yes, manuscript should be typed, pinned together in sections, unscented, and should have written upon it the name and address of the author. Stamps to defray the cost of return postage ought also to be enclosed. But, please, there is no need to stick together some of the edges in order to discover if it has been closely examined. Publishers' readers have sometimes a sense of humour, and they have been known to re-stick the edges before returning the manuscript.

The accompanying letter should be simple; twenty words are ample. A curious thing about young writers is that almost without exception they possess a wealth of "literary friends." If Fate has been good to them in this direction, they should keep the precious knowledge from the publishers. Every second manuscript sent for consideration to a publisher is accompanied by a letter telling of the enthusiasm that it has aroused in the hearts of the "distinguished literary men" who honour the writer with their intimate friendship. "Wolf!" cries the publisher if he be good-humoured; "Malediction!" if he be not.

During the period of suspense the young author should rigorously abstain from writing, telephoning, or calling to inquire after his literary offspring. Give the publisher's reader time, and remember that he does not devote the whole of his day to the consideration of manuscripts. He invariably has other occupations, and to be worried or hastened does not awaken in his heart the warmest of feelings towards the author. If a man prove very tiresome, a far-seeing publisher may decide to have nothing to do with him. "I've got enough cranks in my list!" said a publisher recently in regard to an author who had been particularly active in the matter of letters and telegrams—"Decline it!" He referred to the author's manuscript.

The requests that authors make are sometimes curiously droll. A writer of verse recently requested a well-known West End publisher to read a poem "nine or ten times!" that the majesty of its diction and the music of its metre might at last penetrate to the great man's brain. Another poet, for the whole three weeks that his manuscript was under consideration, wrote a sonnet a day and sent it after the manuscript with a letter. The written version was generally followed, within forty-eight hours, by a type-written duplicate. The annoyance caused by this poet's misapplied energy quite cured the publisher of any enthusiasm he might have felt for the poet's work.

There are still a few "Don'ts" that novices should have engrossed, framed, and hung in a conspicuous position over their writing-tables. When a publisher declines a manuscript, he does so for what appear to him good and sufficient reasons. Don't therefore write him a contentious or abusive letter, calling into question his judgment or his ancestry. He is far too busy a man to give reasons for declining to publish your work. So don't ask him to advise you upon your style, or inquire if he did not like your treatment of the subject chosen.

Many authors mark the parcels containing their manuscripts "Private." Don't! oh, Don't! indulge in this little pleasantry, which sometimes results in a parcel careering after a publisher half over the country. If he goes yachting, for instance, and finds, on first entering his cabin, a brown-paper parcel marked "Personal," why it robs his holiday of half its charm and adds a new terror to the encouragement of literature.

Don't send the first chapter of a novel accompanied by a synopsis, and ask how it strikes the publisher. It will not strike him at all. You cannot judge a novel by the first chapter and a synopsis, any more than you can judge a horse by its hoof and a piece of its mane.

In short, Don't do anything but send in your manuscript, with as brief a letter as possible. Then wait long and patiently for the light bump in the letter-box, telling you of acceptance, or the double-knock of the postman that heralds the return. Once a book is written, all literary success is achieved by an attitude of strict negation. Nothing is gained by impatience and frequently much is lost.

* *Mem.*—Don't attach the *Practical Teacher* coupon to a sheet of MS. with a pin.—Ed.

PARABLES FROM GREEK MYTHOLOGY.

THE WORSHIP OF DEMETER.

BY INGEBORG LUND.

WE have now, happily, emerged from that age of darkness when it was thought by many people that children were wasting their time in reading fairy tales. Others, less austere, allowed them as a recreation, giving them the same place that they would to their own lighter reading. It is due to the efforts of modern writers and illustrators of fairy tales, and their sympathetic insight into their subject, that fairy tales are now acknowledged to be good not only as reading for mere recreation, but distinctly of educative value as a preparation for literature. In their train has come the reading of the myths from which they have grown; but many of us have perhaps not yet arrived at the stage of perceiving that mythology has a value apart from that of cultivating literary taste. It is a poetical form of expression of some of the great facts of life; and although children may not fully understand the stories of these myths, they will, if their imagination has been cultivated, perceive more and more of their truth as they grow up. That which is learned in childhood is often remembered when other later learning is forgotten, and is of greater influence; it is, therefore, a matter of importance that there should be something worth remembering. The myths should reveal to the minds which are stored with their poetic beauty of imagery that the Divine exists not only in a far-off invisible heaven, but on a very real and actual earth.

In all mythology, and in that of the Greeks as much as in any other, there is a consciousness of the all-per-

vading presence of deity. All life and nature was filled with it; its intervention and action explained all problems in human life and the natural world. In an age when science accounts or attempts to account for all phenomena, it is, perhaps, well to remember that their origin has still to be accounted for, and that in the simplest, most everyday events of life we are yet dependent on forces that we cannot control. Living in towns and cities, and in a highly artificial civilisation—coming into contact only very seldom, if at all, with the sources that supply our daily needs, and without any great experience of the power of natural forces—it is, perhaps, no wonder that many of us forget this. It is difficult for town dwellers to realise—and particularly so for those poor children, of whom there are thousands in this country, whose lives are spent in dingy streets, and who have, many of them, never had even a glimpse of the country—how dependent we really are on what was once called our mother Earth. We live by bread, it is true, but town children only see that bread, or the ingredients for it, can be bought with money, and so long as their fathers and mothers have money to pay for it, they have no doubt that bread and other food will be forthcoming. We do not live in such close daily touch with Nature as those amongst whom the myths arose, but we are the losers if we have not their imagination, and many of us have not more than the immortal Mr. Peter Bell. At the best, if a primrose is anything more to us than a common primrose, it is only a *Primula vulgaris* of the order Primulaceæ.

To the Greeks all nature was eloquent of the presence of deities, created in their own image, but on a larger, grander scale, and believed to be immortal and more powerful than themselves. The sea was the kingdom of Poseidon, who made his wrath felt in the storm, but who could also show his goodwill in calm. Every day Phœbus Apollo drove his sun-chariot across the heavens, and left in his train the warmth that creates and maintains life. It cannot be wondered at that he was worshipped for this, but was also dreaded for his fiery darts. In the rippling of brooks over stones were heard the voices of naiads and nymphs; the sighing of the trees and their dying moans under the woodman's axe were the piteous pleading for mercy of the dryads. In the sombre forests a sense of loneliness engendered a fear in which were heard the pipes of Pan. It would be a relief then to come out to see the cornfields shimmering golden in the sunshine, with promise of a harvest for which thanks were due to generous Demeter—perhaps better known to many readers under her Roman name of Ceres.

In a world thus transfigured by unseen divine presences, the Greeks could not despise country life or complain of its dullness and lack of interest; and it does not speak much in favour of our so-called civilisation and advanced learning that we lack that spirit of reverence—that sense of the presence of unseen forces—which glorified the world to the Greeks. It is a step in the right direction that the myths are being revived; but they should be interpreted with sympathetic understanding to be appreciated at their true worth. It should be said here that teachers when explaining these myths should bear in mind the circumstances of their pupils, and speak chiefly of those likely to be best understood by their particular audience. The story of Demeter and Persephone, for instance, should appeal to the imagination of children living in the country, while it is hardly likely to be understood at all by children living in the heart of a great manufacturing town. When paganism passed away, the patron saint of agriculture would probably take the place of Demeter, and in many minds doubtless holds it still; but in our modern life the worship of Demeter is really a spirit of reverence for the earth as the storehouse of daily bread, and, directly or indirectly, of all means of sustaining life. If the imagination of children could be stirred to realise this, and to understand that the myths are a poetic garment in which the seemingly commonplace facts of

EURYDICE.

One of the most touching stories of Greek mythology was that of the descent of Orpheus into Hades to bring back his lost bride Eurydice, who died in consequence of a snake bite in the heel received on the day of her marriage. Orpheus was told that he must not look upon the face of Eurydice until the upper air was reached, but in the eagerness of his love he forgot the injunction, and his bride was reclaimed by the Powers of Darkness.

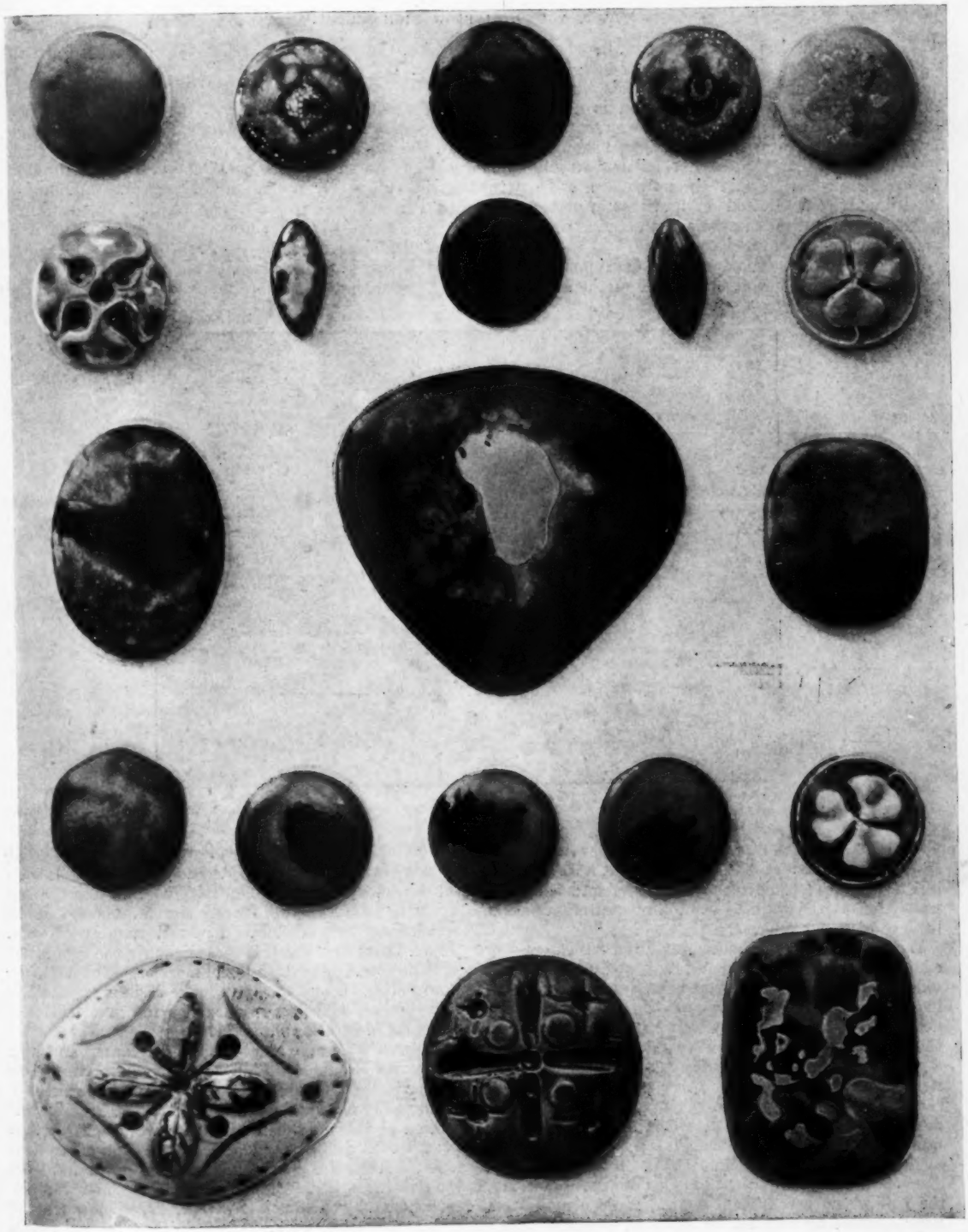
their own lives are clothed, country life should have a new interest for them. Provided the much-needed improvements in the lot of the agricultural class are effected, there should not, when the value of the work and its supreme importance to the general welfare is understood, be so much craving—chiefly the craving of empty minds—for the artificial and tawdry excitement of life in the towns. Science has now entered into the service of agriculture, and has raised the tilling of the soil and the care of animals to a higher rank by placing it on a level with other work requiring intelligence and special training. Agriculture provides the means of sustaining life and health, and may claim to take rank with that other great science which aims at preventing and stamping out disease, at restoring and preserving health and prolonging life. As a science, agriculture has its intellectual claims; but when it is understood that the success of its efforts depends on the aid of higher forces than the human, it should acquire also a moral significance. If this is understood, it will be seen that the throwing away of bread, or indeed of anything that is fit for food, is something worse than ordinary wastefulness—it is very close to being a crime, in kinship with the taking of human life. In worshipping Demeter the Greeks recognised and acknowledged agriculture as a divine gift bestowed on them by the gods. The modern mind sees in scientific discovery only the result of human brain power, forgetting sometimes that the origin of this brain power has not yet been discovered.

It is, perhaps, hardly necessary here to dwell on the story of Demeter and Persephone; it has been interpreted so often that any further explanation seems superfluous. Persephone is the daughter of Ceres, as the flowers are children of the earth, and she is carried off by Pluto to his dark kingdom underground. The flowers disappear in autumn and return again in spring, and Pluto yields at last to the entreaties of Demeter to allow her daughter to return to the light for six months in the year. If some of the Greek gods had very human failings, they were also very human in their affections; and the mother's sorrow of Demeter, and her wanderings over the earth in search of her daughter, are a very beautiful feature of this myth. In this connection the story of an incident in the wanderings of Demeter might be told. Many towns and villages in Greece claimed the honour of having sheltered the goddess, who in various disguises asked for hospitality. It thus happened that she came to Eleusis in Attica. While she was resting beside a well, to all appearance a sad and weary old woman, the four daughters of Keleos, the chief man in the town, came to draw water. They entered into talk with the old woman, whose sorrowful looks had awakened their sympathy, and the goddess, after telling them a fictitious tale of her woes, accepted their invitation to go home with them. She was kindly received by their mother, Metaneira, who entrusted her little son to the supposed old wayfarer. She promised to give him every care, and the child grew in a surprising degree, although she had not given him any food. Instead, she secretly anointed him with ambrosia, and breathed lovingly upon him. At night, unknown to the parents, she put him in the fire. But the inquisitive mother had stolen out of her room, and when she saw her child in the fire she screamed aloud. When Demeter heard her, she took the child out of the fire and laid it on the ground; then, raising her voice in anger, the goddess complained of the human want of understanding, for Metaneira had interrupted her, and was herself the cause of the child not becoming immortal. She then suddenly stood transformed in her majestic stature of a goddess, and commanded that a temple should be consecrated to her. The household of Keleos was filled with terror, and everything was done to conciliate the angry goddess. With the sanction and aid of the townspeople, Keleos erected a temple, and Demeter, after having herself instituted the rites of festivals and sacrifices, left Eleusis.

The myth is so simple in its outline that an interpretation hardly seems necessary. There is in it the old thought of growth through endurance of some trial. Without aiming so high as the attainment of immortality, it is a matter of common experience that adversity in some form or other is generally necessary to mental and moral development. Too great ease of attainment and immediate success often have the effect of stunting growth and developing self-satisfaction. Demeter wished to give the child the highest gift in her power—that of becoming immortal and equal with the gods—and she prepared him for the trial by fire by anointing him with ambrosia. Goethe, in common with many others, believed that not all will be immortal, because the soul is not developed in all; and if the endurance of pain is a condition of spiritual birth, then there will also be given the power to endure. This also, then, the Greeks learned from their worship of Demeter—that is, those for whom it did not degenerate into mere external idol worship. It was not only their Unknown God to whom they had erected an altar that needed revealing to them; the other well-known gods also deserved recognition, and the beliefs about them held possibilities of higher interpretation, since behind much of the apparent idolatry there was some enduring truth. It is this that gives mythology a value of more than archaic interest, for though the outer form may have perished, the inner truth still endures through all changing forms of expression.

One result of the study of mythology should be a quickening of the imagination which would transfigure the world as a visible expression of the Unseen. By this imaginative gift the Greeks realised the dignity of agriculture; and so far from thinking, as it is so often thought in these days of the worship of mechanical achievement, that country dwellers must of necessity be dull, coarse, and slow-witted, they regarded country life as having a refining and civilising influence. It was to them the means of developing an ordered state of society, of making settled homes and nourishing human affections. It awoke in them a spirit of gratitude and reverence which led them to worship the goddess to whom they believed they owed their blessings. We have hitherto thought too highly of town life as affording greater opportunities of mental and moral advancement, and seem to forget that this does not depend solely on easy access to public libraries and university extension lectures. These facilities may extend knowledge, but they will not of themselves develop imagination. The Greeks of olden days are still an example of a high state of civilisation. We still appeal to their great thinkers, their unsurpassed artists, as unquestioned authorities. Perhaps we have not yet sufficiently recognised that in the place which they accorded to imagination—that gift of transfiguring the commonplace—we might do well also to be guided by them. For if imagination leads on to reverence it deserves a first place in moral education, seeing that the spirit of reverence is at the root of all moral growth.

Our Art and Handwork Section.



POTTERY.—BUTTONS, HEADS OF HATPINS, ETC.

SIMPLE CRAFTS FOR SECONDARY SCHOOLS.

POTTERY.

BY J. YOUNG, GLASGOW HIGH SCHOOL.

THE modelling lesson usually taken in school is of a type that rightly forms the introduction to sculpture. It is mainly imitative, and deals with the form of the thing only. Colour, therefore, is not a recognised part of the exercise. There are many eminent and satisfactory reasons why sculpture should not be polychromatic, but it does not follow that this very important element should always be absent from the modelling lesson. Indeed, we find that in pottery (one of the oldest and most artistic of the industries) colour is the chief source of its charm.

The history of the discovery and development of the application of colour to china and earthenware is so filled with examples of patience and perseverance, and all that is highest in human endeavour, that it reads like a romance; while modern industry and enterprise have brought the work to a pitch of perfection that is little short of marvellous.

Without detracting in any way from the interest or educational value of the modelling lesson, a course providing for the inclusion of some exercises in this interesting craft might very well be carried out in school. The necessary equipment may be a drawback to some, though most schools that take science are provided with a gas kiln, which might be utilised, and this is the chief item of expenditure. The other materials and tools required do not cost much. Common clay and a few coloured glazes can be had from any pottery; the fingers are the best tools, though some of the ordinary modelling tools will be found useful. Should the work develop into more ambitious lines, as doubtless it would, the equipment becomes, of course, more complicated. Reproduction by casting, for instance, means a supply of plaster of Paris, and other little necessaries, for makin the moulds, etc.; but these will be dealt with later.

The direct imitation of good pottery shapes is in itself a good exercise in modelling, involving just as much care and regard for truth of form as in the Nature study. In this type of exercise one need not stop at imitation; he may go on with the construction of original efforts, giving scope for invention and design. Finally, the student will have to use colour in a new way entirely—a way which will open his eyes to the whole question, and give him a scientific as well as an artistic knowledge of this very valuable element in art and industry.

The exercises at the beginning need not be difficult or ambitious. Indeed, the smallest children might do all or part of them. Take, for instance, the examples shown on our coloured plate. You have here an exercise that might be made suitable for any class in school, and one which may be varied in an infinite number of ways. Taken at its first stage, it means simply the rolling out of little round spheres to make marbles. The next step is to flatten the spheres, and make a simple roundel or pottery disc, which may be used as an ornamental spot of colour in various constructions.

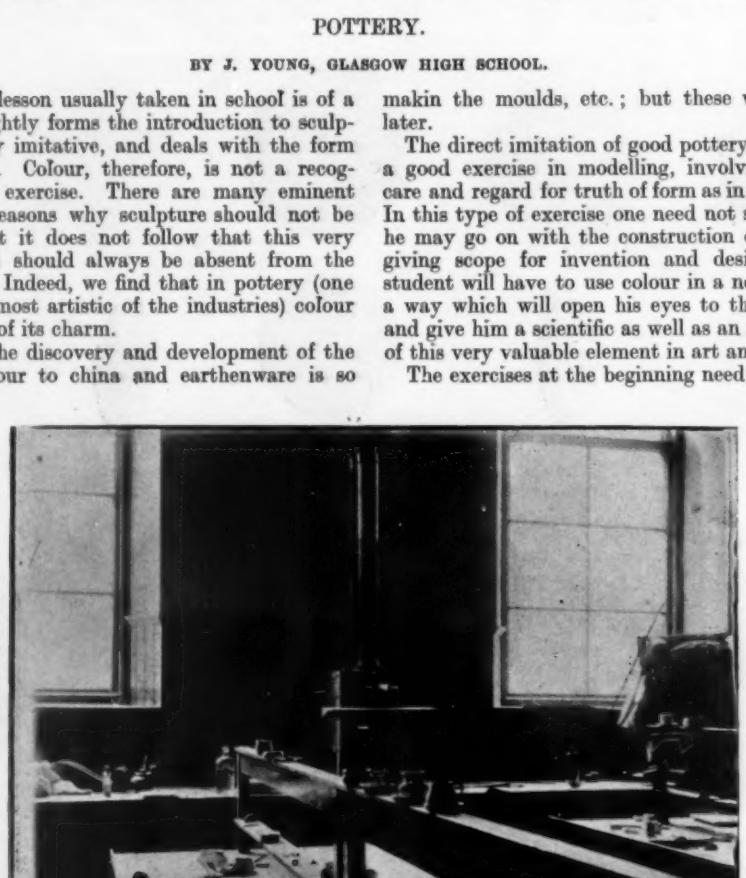


FIG. 1.

Suppose a young class about to attempt the making of a simple roundel. First see that the clay is thoroughly *wedged*, *mixed*, and *tempered*; then break off a small piece, place it in the left palm, and by a turning motion of the right hand, form it into a sphere; then lay it on the desk or board, hollow the palm of the right hand, and press the clay sphere gently down flat. Let the pressing be done gradually in a series of little touches, rather than by one quick, heavy stroke, which *may* make or mar the whole work. When finished the top should be smooth, and the raising quite regular. The under

side should be flat, and the edge thin, but slightly rounded. They are then laid aside in a warm place to dry. Great care should be taken in handling them while they still remain soft. When they have dried quite white they are rubbed over with fine sandpaper, or soft blotting-paper, if a very smooth surface is desired, and are then ready for the glaze. Coloured glazes may be bought in powder from any pottery, or from Messrs. Wengers, Limited, of Stoke-on-Trent. They are mixed with water and a little gum to the consistency of cream, and applied to the surface of the clay roundels with a brush. The brush should be loaded full, and the surface gone over two or three times to make sure that every part will be covered equally with the powder when the water has evaporated. If blended tints are desired, agreeable colours should be selected and mixed, ready to be applied at the same time. A good deal must be left to chance, or rather to the fire, as to how the blending will come out. The accidental effects are often very beautiful, and experience will suggest combinations and

Fig. 2.

methods of applying the colours as the work proceeds. One is working a good deal in the dark with these colours, for when you apply them they do not look at all like their names. They are all dull, gray-looking mixtures; but, when they get the right amount of heat to melt them and make them run, they then come out in all their glossy brightness. When a dozen or so of discs have been painted with the glaze, they should be placed upon a slab of fireclay (see that no glaze has got on the underside, else it will stick to the slab when fired), laid aside till dry, when they are ready for placing in the kiln.

The kiln should be of the muffle type, as the ware must be protected from direct contact with the flames. We give an illustration of a kiln (Fig. 1) which does good work at comparatively little cost. When at maximum heat it consumes only about 2d. worth of gas per hour; its only drawback is the rather limited accommodation of the inside of the muffle. It is fitted on a bench, so that the door comes on a suitable level for working. The surrounding woodwork is protected with asbestos or concrete, and the kiln itself rests on a slab of Caithness stone, though there is not much danger, as the heat is kept well within the limits of the iron casing. When there is only one tap there is some difficulty in regulating the heat at the beginning of the firing. One must raise it gradually, and the trouble is to keep it low enough without the bother of it lighting back.

Further particulars of the placing and firing will be given later. If the Art Department does not possess a kiln, most chemical laboratories do, and this could be used now and again for "firing."

Meanwhile let me suggest how this first exercise might be varied to suit different stages. For instance, other shapes than the circle may be chosen for the outside form, and if a straight-edged form is selected it will very likely lead to the introduction of ridges on the domed surface. If the class is equal to it, they may go on decorating the top by modelling a design upon it, and there is no limit to the difficulty which may be introduced. The design may consist simply of a series of depressions and dots, or tool marks orderly arranged; or it may be the modelling of a simple leaf, flower, or

Fig. 3.

animal from nature—in short, any device which the class is capable of working out. The coloured plate shows a variety of such exercises that have been worked out in this school.

Again, the ornament may be applied to the surface with a brush. Coloured slips, which are simply clay powder mixed with colouring oxides, can be bought ready for mixing with water. They are applied to the clay surface with long-haired brushes called riggers, following any proposed pattern, which may or may not be first outlined in pencil. In doing this, one can raise the pattern to any extent; only one application of the slip should be thoroughly dry before another is laid over, otherwise it has a tendency to peel off.

The exercise may be further varied by making the plain or ornamented disc into a hatpin head or a button. In making a button, a small, slightly-flattened piece is added to the centre of the flat back, and the two pieces thoroughly worked together to hide the junction. This projection is then pierced with a stout wire, and the edges of the hole smoothed and rounded off as much as possible. If the edges are left rough, they would cut the thread used in fixing them to the garment. If a hatpin head is desired, the addition at the back is worked into some graceful tapering shape (see Fig. 2), and the piercing done right up the whole shank, practically to the top of the domed surface. This piercing should be fairly wide, as the clay contracts in drying, and great care should be taken to see that the whole thing is well balanced on the wire. When the wire is in position, hold it upright, and turn it slowly round, watching the head meanwhile, to see that its motion is regular. If satis-

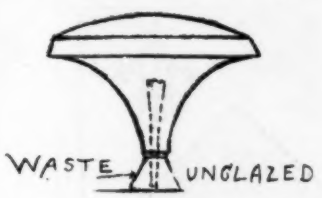


Fig. 4.

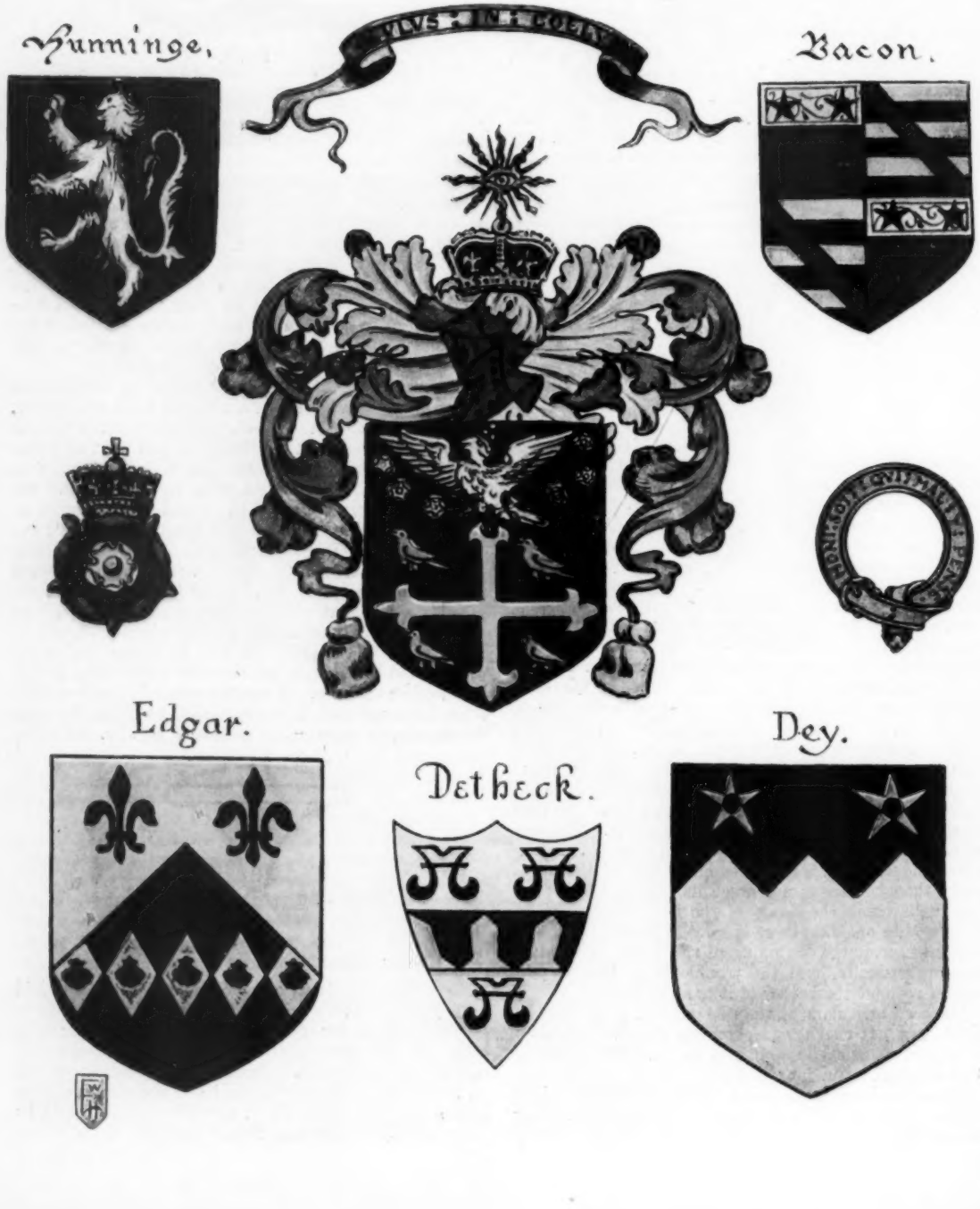
factory, the wire is then removed, and the heads laid aside to dry. The glazing of these is proceeded with in the same way as for the plain discs, only the under sides must also be glazed partially. As they are supported in the kiln on the thin tapering point, and buttons rest on the round projection at the back, the glaze must be kept away from these parts, else the contact would be permanent (see diagrams, Nos. 3 and 4).

THE HISTORY LESSON AND DRAWING.

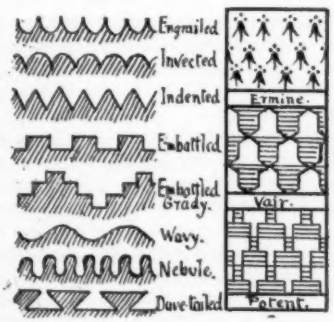
HERALDRY.

BY W. H. ELGAR.

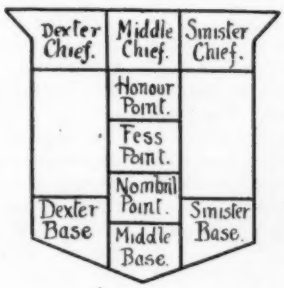
AN apology is scarcely needed for including this subject in our considerations of the History Lesson and Drawing. Had these notes been written some few years since, many of us would probably have looked with rather scornful eyes upon such studies as are here advocated.



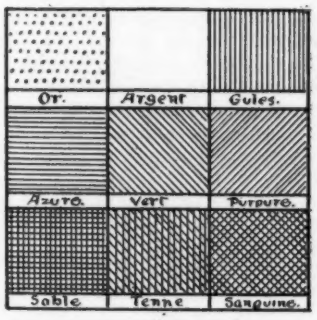
Heraldry has been termed "the shorthand of history," and it certainly is the symbolic history of the nobility of Great Britain from the Conquest to the end of the upon them. Then the more personal arms of our sovereigns, as exhibited in such places as Hampton Court, though they form splendid demonstrations of



1 2



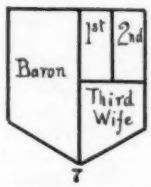
3



4

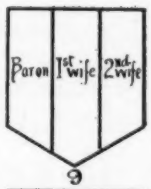
5

6



7

8

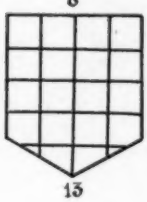


9

10

11

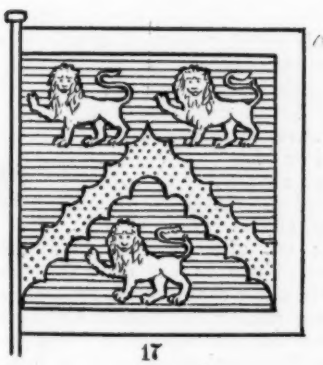
12


13

14

15

16


17

Tudors, if no further, for all who can read it. Even a superficial study of the royal arms during these periods would convince that we have made a mistake by neglecting these decorative records so long. England's relations with France, Spain, Scotland, and Ireland have made their marks, either temporarily or permanently, the descent of the individuals to which they refer, are closed books to all too many.

Heraldry has suffered from being considered "a dead language." This is far from being the case, for as long as the sovereign can create a new order of knighthood and give it heraldic insignia, can create a new peer,

can order a new ceremonial, so long must heraldry be a living language.

Apart from these considerations, some study of heraldry will give practice in *simple, direct* colouring; careful drawing and study in proportion—most wholesome correctives to a great deal of the all too free work so often done in our schools.

It is perhaps just as well to distinguish between "heraldry" and "armoury," which latter title would have been more appropriate for these remarks, though on account of its more usual employment the term heraldry has been retained. Armoury governs the display of pictured signs and emblems belonging to shield, helmet, or banner; whilst heraldry comprises everything within the duties of a herald, as the regulation of ceremonials and matters of pedigree, which are decidedly not armoury.

Of course only the very fringe of this great subject can be touched here; but such few essentials as will enable some of the more usual arrangements to be understood will be found as we proceed.

Most books on heraldry contain considerable remarks upon the shape of the shield. It is generally safe to

A tricked sketch.

conclude that the simple, long-pointed shields are earlier in date than the squarer or those with broken outlines. The particular points or places on a shield are marked in Fig. 3. In this connection it should be remembered that, unless otherwise stated, a charge is placed in the middle or "fess" point of a shield.

These charges, or signs, consist of bands in various parts of the shield, in various directions, of various colours, and of various widths; of various geometrical forms; and of more or less conventional drawings of various objects having symbolic meaning. Here, as with the shape of the shield, the more simple the charge the more ancient and honourable is a safe rule. Many of these will be referred to when describing the examples illustrated, for these have been selected greatly with that idea. Often the arms of more than one person are displayed on a single shield, Figs. 5 to 10 and Fig. 13 being sketches of some of the usual ways of arranging them. In Fig. 5 the shield is cut down the centre, *parted per pale*, and the arms of the husband (*baron*) and the wife (*femme*) occupy the *dexter* and *sinister* sides respectively. It should be noted that the dexter side is to the observer's left; if the shield is considered to be on the owner's breast all will be plain. What is done should the baron marry again, is shown in Figs. 6, 7, and 8, Fig. 9 being an alternative arrangement for placing the arms of two wives upon the shield.

Should a baron marry an heiress in her own right, he bears her arms on a small shield placed in the centre of his own, as Fig. 10. This must not be confused with Fig. 12, which is a shield with a border, called bordure technically, one of the earliest means of distinguishing the leaders of different bands that served under one chieftain, as in the Crusades.

A large number of different arms are sometimes placed on one shield (Fig. 13), the compartments being called quarterings, no matter their number. This was often done on the shields over tombs, each family that the deceased was in any way connected with being represented. His banner, similarly quartered, was borne at his funeral, often followed by separate small square flags of each of the quarterings. One of these is Fig. 17, which contains the arms of Smythe, whose effigy was described in our paper on "Costume." These arms, granted in 1591, are described as azure (the colour of the field), a chevron engrailed (see Fig. 1) between three lions passant-gardant, or (colour of the lions and chevron).

Another way of parting the shield diagonally, *per saltier*, is sketched as Fig. 11, and a complex way in Fig. 14, *parted per pale and per bend*. Quartering must not be confused with *baron and femme;* the shield of Bacon in our coloured plate (two families, not two individuals), and France and England quarterly on the older royal arms from Edward I., should make this plain.

The lines dividing the shield were not always straight; the usual variations are shown as Fig. 1. The parts of the surface of the shield (field) were sometimes covered with all-over patterns; three of the most usual are given in Fig. 2—*ermine*, from the fur of that name; *vair*, a bell-shaped counterchange usually blue and white; and potent (crutch shapes), also a counterchange.

Several of our sketches have lines or dots upon them; the meaning of them will be understood from Fig. 4, where *or* stands for gold, *argent* for silver, *gules* for red, *azure* for blue, *vert* for green, *purpure* for purple, *sable* for black, *tenne* for orange, and *sanguine* for dark red. These technical terms are those used in describing coats-of-arms in modern times, but the heralds of the Middle Ages were more extravagant, and spoke of gold as *topaz*, silver as pearl or *meergries*, red as *ruby*, blue as *sapphire*, green as *emerald*, and black as *diamond* or *zobel* (the animal, whence sable).

This system of hatchings is comparatively modern, being introduced by Petra Sancta in 1638, and superseding several other systems, all of which dated during the first half of the 17th century.

Probably this system of indicating colour will gradually fall into disuse, now that colour printing is becoming general, but it is necessary to know its meaning.

Official records in the College of Arms are sometimes "tricked"—that is, drawn in outline, colours being added in contracted form—"O" for or; "A," "Ar," or "Arg," for argent; "G," or "Gu," for gules; "B" for blue; "S" or "Sa" for sable; "Vt" for vert, and "Purp" for purple. The accompanying figure is a "tricked" sketch taken from an old picture of a Jacobean gentleman, 1623. An heraldic description of the arms would read: "Gules, a chevron vair (vair is blue and white, unless otherwise stated), between three eagles displayed, or."

Two forms of funeral escutcheons or hatchments are Figs. 15 and 16. These were often exhibited on the houses of deceased nobility, carried in the procession, and sometimes left in churches, where many are still to be seen. In Fig. 15 we have the escutcheon of a baron whose wife survives, his half of the shield being on a black ground. One point should be noted here: the diagonal lines indicating green are drawn parallel to the *bend*, which is charged with three crosses fitchy (reference to shape), which have lines passing from top to bottom, standing in this case for *red*. The diagonal position (Fig. 6, hatchment) tells us that the wife of a knight is dead (the helmet in profile indicates the rank).

Our coloured illustrations are all taken from the grant of arms to the borough of Eye, Suffolk, 1592. The arms of the borough are in the centre of the plate, supported on one side by the Tudor Rose, and on the other by a garter in blue edged with gold. The shields above are of important gentlemen connected with the borough at the time; while of those below, Detheck was Garter King-at-Arms, who signed and sealed the document, and Edgar and Dey were added at a subsequent date. Altogether there are fourteen shields on the patent.

It will be just as well to give the heraldic descriptions of the devices shown. Borough of Eye: A large plain shield, with a helmet and lambrequins in argent and azure, and gold tassels is charged azure, a cross flory between four martlets, or; in chief, on a rose branch issuing out of the cross, bearing six roses argent, an eagle, wings extended of the third (colour) crowned of the second. Crest: On an imperial crown, gules and or, a star of sixteen points, or, in the centre an eye. Motto above: Oculus: in: cœlum:

Hunninge: Quarterly, vert and gules, a lion rampant argent, langued (tongued) and membered of the second.

Bacon: 1st and 4th gules, on a chief argent, two mullets sable: 2nd and 3rd, barry of six, or and azure; a bend gules.

Detheck: Argent, a fess vairé or and gules of one row, between three water-bougets, sable.

Edgar: Per chevron, or and azure, in chief, two fleur-de-lis gules: in base five fusils conjoined in fess of the first, each charged with an escallop shell of the third.

Dey: Or, on a chief indented azure, two mullets pierced of the first.

The Tudor Rose, crowned, it will be seen, consists of a red and white rose combined, having a gold centre and green leaves at the junctions.

NEEDLECRAFT FOR PRIMARY AND SECONDARY SCHOOLS.

BY ANN MACBETH AND MARGARET SWANSON, INSTRUCTRESSES AT THE GLASGOW SCHOOL OF ART.

PART IV.—*Continued.*

AT this stage the gradual and later development of our hand and eye, or manual training, has gained for the adult that new consciousness which results in her as an active, inventive agent.

In a line with the thought of mental development, dressmaking should be taught no more as a detached

DIAGRAMS 89, 90.

form of needlecraft than joiner work should be taught as a detached form of "manual work."

During the adolescent and adult stages the motor activities are to be directed towards understanding *types*, with their many possibilities, rather than following out mechanically this and that system. To illustrate our point, take a sleeve. For nightdress or blouse, for coat or overall, the principles are the same. Diagram 89 illustrates the taking of the first measurement; Diagram 90 illustrates the taking of the second measurement. Allowances have to be made for gathering, gauging, pleating, or tucked fullness. Incidentally, each child takes her *own* measurement.

Interest grows in showing the proportions of the arm and the proportions of the body to each other. One-third is allowed for the shoulder region—two-thirds for the rest of the arm. Then, again, the wrist is approximately one-third of the shoulder width.

This type may be modified or expanded to suit the whim of fashion or the purpose of the dress—*the principle is unalterable.*

DIAGRAM 91.

Material.—Texture, as a means of developing mind, must not be thought of merely in its utilitarian aspect. From the fashion of to-day, associated by successive stages with that time when the roughly-dried skins were pierced and tied together by thin thongs, interesting developments in personal and household materials link together the different periods of history.

This overlapping with history—this principle of many and varied associations — is important not only in strengthening the memory, but in giving light and vista to the mind.

Thus, material in development, in cost, in choice, must be taken into very careful consideration, and the use to which the work is to be put is an important factor in this.

We have already referred in previous numbers of this magazine to the worth of unbleached calico. Bolton sheeting and unbleached calico are both good and durable. For washing dresses, the nicest and most

Diagram 92.

durable material is the print which is generally used for servants' dresses. It can be very charmingly decorated with pipings of the self material, or of another colour. Dyed calico such as is used for casement curtains also makes excellent dresses, and can now be had in unfading colours at a very low price.

For general use in household needlework a firm quality of linen may be recommended as being durable, inexpensive, and pleasant to work upon. Linen is made nowadays in so many beautiful textures and colours, and it is perhaps of all materials the firmest and coolest, and most pleasant to work upon.

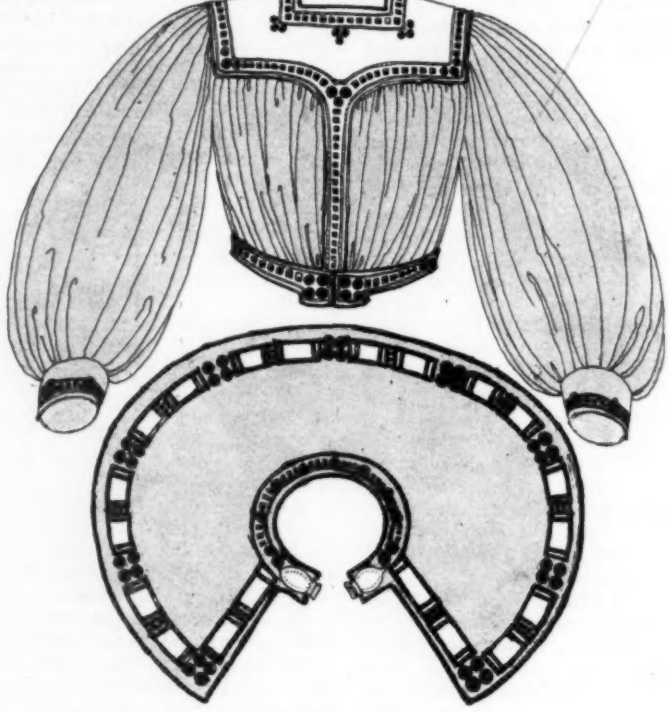
Silk of firm quality is also good to work upon, and a thin silk answers well if it is backed by a firmer material before working. A combination of silk and wool such as Roman satin is excellent, and should wash well.

Extravagance, both in cost of material, and still more in the amount of ornament with which it is treated, is

PINAFORE DRESS OF WOOL OR COTTON WITH YOKE PIPED & EMBROIDERED

Diagram 93.

at all times to be avoided. A certain amount of undecorated surface is, as a rule, necessary, and serves to enhance the value of the design; and it must above



Diagrams 94, 95.

all be borne in mind that the design is subordinate to the usefulness of the article to be decorated.

It is quite unnecessary to decorate that portion of a mat on which a lamp, basin, or vase will stand; nor need the whole surface of a sideboard cloth be covered with pattern when a certain portion of it will be covered with dishes when in use.

As a large number of the diagrams for embroidered articles illustrated in the last two or three numbers of this magazine have been more specially suited for appliqué work, it seems advisable at this point to give a few directions as to the best method of marking such designs on the material. To begin with, the forms used in such a design must be of the simplest possible kind—without cutting the applied material into long narrow or twisted sections that will easily fray while the work is in progress.

The simplest and neatest plan of transferring pattern to linen for appliqué embroidery is to draw the pattern on stout tracing-paper; or, if many repeats are desired, on tracing linen. This must be carefully pinned into the correct position on the material, with drawing-pins, on a board. When quite correctly placed, remove the pins at one side of the tracing and insert a sheet of carbon paper, and trace down with firm pressure with a stylus or a hard pencil. The various applied patches may be traced on to the material required, and this must be then cut out and basted carefully in to its proper place in the pattern, and the edges then firmly embroidered down with satin stitch.

The most suitable shapes for designing applied patches are as in Diagram 92, and these forms, in conjunction with straight lines of connecting borders, or spots or open work, or with very simple curves, should give the beginner in design immense scope.

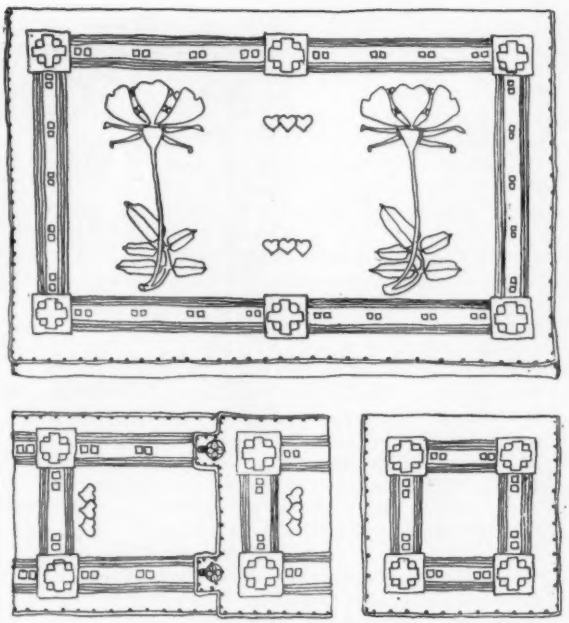
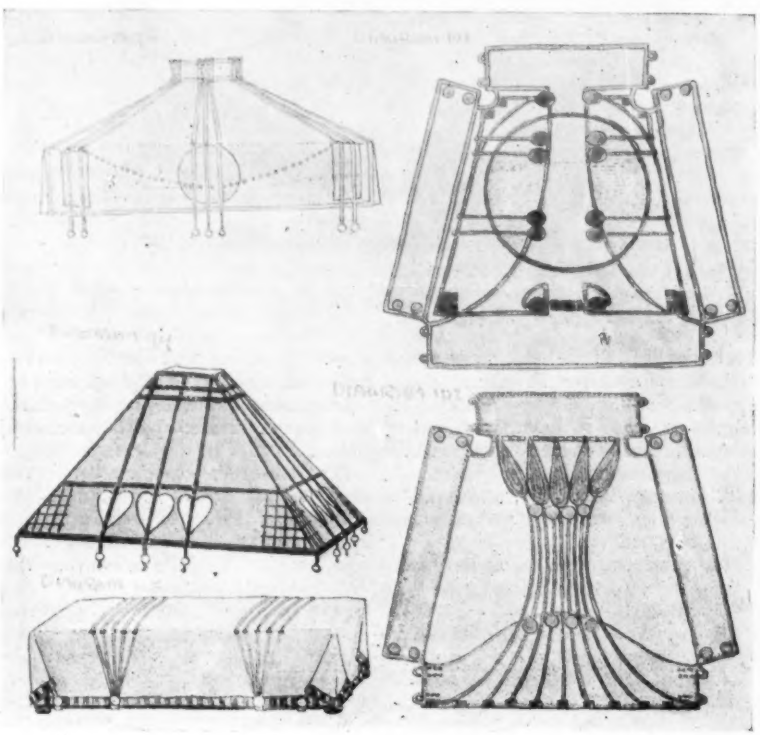


DIAGRAM 96.

Diagram 93 shows a child's pinafore dress in wool or cotton, with yoke piped and embroidered.



DIAGRAMS 98 TO 102.

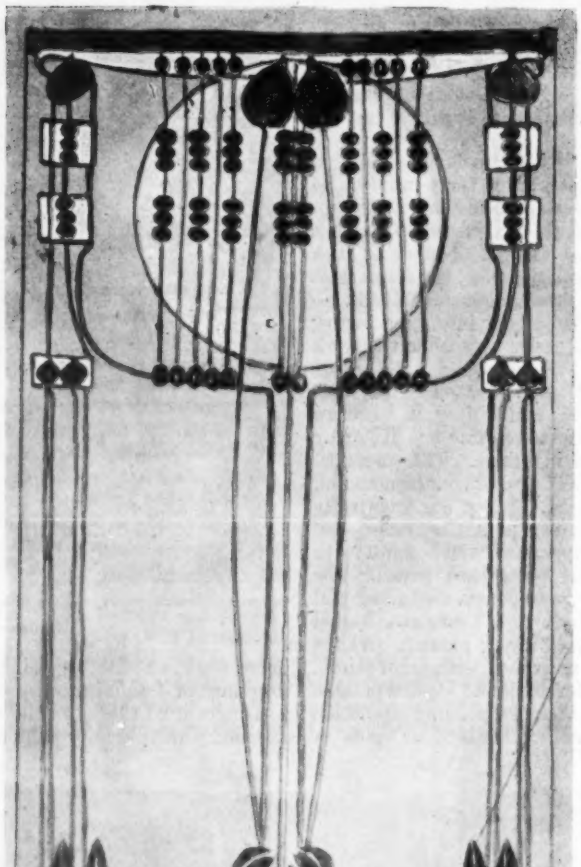


DIAGRAM 97.

Diagram 94.—A blouse of thin flannel or cotton with yoke of contrasting colour finished with piping and pattern of lines and spots.

Diagram 95.—A tippet or collar in linen, with pattern appliqué or darned, and outlined with satin stitch.

Diagram 96.—Nightdress bag, brush bag, and handkerchief satchel, in silk or linen, with pipings and embroidery in satin stitch and couching.

Diagram 97.—A curtain in linen, with embroidery in wool, Couching and darning and satin stitch is introduced, with bands of green linen at top and foot.

Diagrams 98 and 99 are lamp-shades of washing silk, with design in silk appliqué and strappings of sarsenet ribbon.

Diagram 100.—A footstool cover in serge, with woollen cords.

Diagrams 101, 102.—Chair covers in linen, with appliqué of linen sewed with wool.

(To be continued.)

ART AND THE BOOK.

EARLY BOOK ILLUSTRATIONS: TITLE-PAGES.

BY W. E. SPARKES.

Caxton's Later Illustrations.

As Caxton became more expert in printing, he began to pay greater attention to his illustrations. The strange creatures that stood for foxes and geese in his *Æsop's Fables*, the still more wonderful men and women who look out upon the world with such a wooden eye from his *Canterbury Tales*, made their final bow to a public long accustomed to dainty illustrations in illuminated manuscripts, and probably shocked at Caxton's rough woodcuts. Moreover, books were now brought from the Continent in every ship that sailed from Flanders or France; libraries were beginning to form in many houses, and the Church was a generous patron of printers both at home and abroad. This is hardly a matter for surprise, since the great majority of books printed before 1500 were religious in character—probably because books in manuscript had been for so long a time the work of monks and the craftsmen attached to monasteries and abbeys; and also because the new art of printing was seen to be a quick and profitable means of producing copies of manuscripts, to be sold to the devout. Both as scholars and critics, as shrewd editors and fine craftsmen, the monks would naturally have great influence in deciding the course of printing. The precious manuscripts stored so carefully in the *scriptorium* would be set up page by page by the German printer, who had just arrived with his magical press; and he would be encouraged to make as close an imitation as possible of the manuscript, not only in using type founded on the local handwriting, but also in cutting wood-blocks in outline to take the place of the dainty initial letters and illustrations that formed one of the chief beauties of these delightful manuscripts.

But Caxton was less indebted to, or less under the protection of, the Church. In Bruges he had been encouraged by the Duchess of Burgundy and his fellow-traders to print secular books—old-world stories, and romances. At Westminster the Earl of Rivers and the courtiers, to say nothing of the London merchants who took Caxton's printing-shop at the Red Pale as one of the sights to be seen on their periodical visits to the Abbey, encouraged Caxton to produce books that would appeal to the English love of quaintness, adventure, romance, and humour. It is not, therefore, surprising to find the *Canterbury Tales*, and *Æsop's Fables*, and the *Game and Play of Chess* among his early productions; neither, perhaps, is it strange that the illustrations to these books were so crude, since he would not be likely to find handsomely-illuminated copies of works that were more or less popular in flavour.

When, however, his subjects were more religious in character, he had plenty of examples to draw upon. In the Abbey *scriptorium*, in the libraries attached to noble houses, and even among the most cherished manuscripts collected by wealthy merchants, he would have a rich choice of illustrations, many of which had been drawn by English and foreign artists in the 12th, 13th, and 14th centuries.

The illustration produced in this number from Caxton's edition of a celebrated book that had existed in manuscript for many years, the *Speculum Vitae Christi*, is clear proof that it was possible for him to obtain good engravings even in England at a time when English art had fallen on evil days, and had not yet recovered from the disturbances brought about in all peaceful pursuits by the Wars of the Roses.

This charming woodcut is almost certainly a copy from a painted miniature in a fine manuscript—a miniature which was itself most likely copied from a stained-glass window in an abbey, or from a painting on the east end of a church wall. Though in outline only, it agrees admirably with the type; its heavy lines and simple treatment harmonise much more agreeably with Caxton's black letter than the most highly-finished and delicate modern illustration could possibly do—one reason, among others, why such men as William Morris, in their anxiety to bring back into fashion fine ancient type and the harmonious setting which distinguished early books, have always reduced the illustrations in their books to mere outline.

One must remember, too, that these outlines in early books were meant to be coloured by hand, in imitation of the initials in manuscripts, the outlines merely indicating the spaces to be filled with colour. It is evident that, even if the wood engravers in England had been skilful enough to produce the marvellous blocks which were common in much later times, that would have been so much labour thrown away. Light and shade, distance and roundness, as well as colour, were all left to the illuminist and his apprentices, who filled the outlines as their fancy led them, producing in the best work the daintiest little painted pictures imaginable.

True, the 16th century had hardly opened, and Caxton had been but a very few years in his grave, when such foreign giants as Albrecht Dürer brought their art of engraving to perfection, suggesting light and shade, texture and atmosphere, in their marvellous wood-blocks. But it was many years before the art took root in England, and it was still longer before native engravers were able to make any show worth mentioning. It seems a strange thing that *English* art should have been so highly prized in the centuries before printing was invented, but that, so far as pictures and engravings go, it should have played so small a part for many years after Caxton had introduced the art.

Still, in this simple engraving from the *Speculum*, it will be seen there was promise for the future. The steps to a more complete statement had already been taken. Shadows in the drapery are indicated by a few cross-lines, and some attempt to avoid flatness may be traced in the lines drawn on the legs of the kneeling soldier. The touches of solid black in the centurion's sword and in the boots are very effective, and do much (probably quite accidentally on the artist's part) to harmonise the print with the heavy black letter.

I think there is little doubt that the picture was copied originally from a larger painting, or at least was drawn by an artist trained to decorate wide spaces. It is so *architectural;* the figures are set out in such balanced masses, and all the lines and the actions point so directly towards the central figure, that one who had not been trained in this decorative school—this most

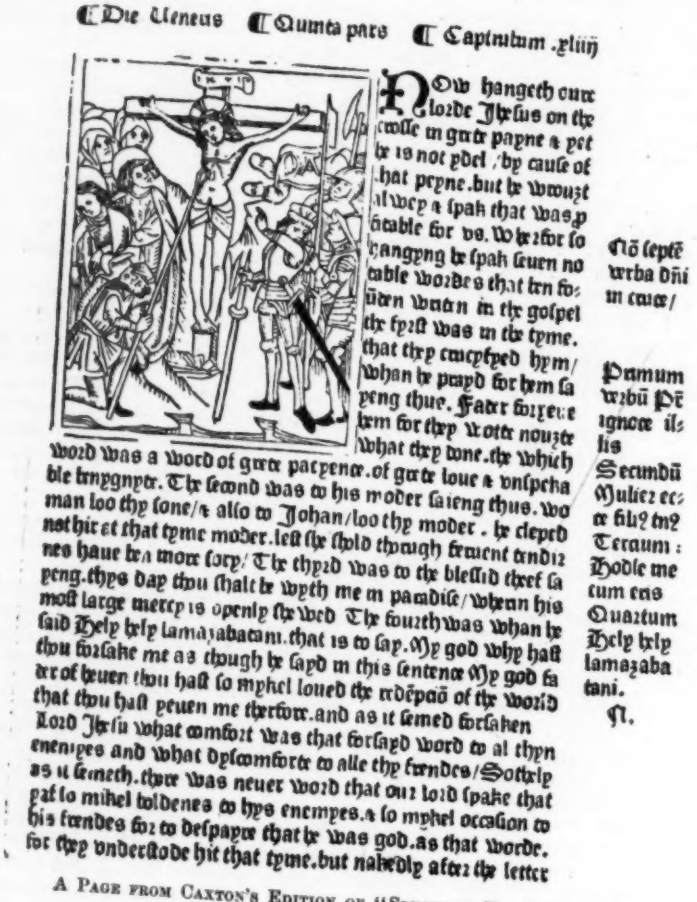
powerful manner of dramatic statement—would have shown his want of knowledge inevitably.

Caxton's "Device."

We are only concerned here with the artistic side of the book—its type, setting, and illustrations. But much might be written on printers' devices—the trade-marks which the great houses, the Elzevirs and Plantins and other master printers, put on the title-page of every book issuing from their presses, and which were often highly artistic in character. But we must content ourselves with drawing attention for a moment to Caxton's device—not for its artistic worth, but only for its interest. It did not appear in his first books, but afterwards it was commonly used by him as a sign. Afterwards his pupil and successor, Wynkyn de Worde, proud of his connection with Caxton, continued to print it with merely the addition of his own name.

Much ink has been spilt in trying to find a hidden meaning in the mysterious lines between the W. and C. Some read it as 47 or 74 (the figure 4 being commonly written like a loop in those days), and find in it either an indication of Caxton's age (47) or the date (1474) when he returned to England. But others have found very similar signs used by traders living at various times; so that Mr. Blades's suggestion that this has no particular meaning, and may have been used by Caxton when a merchant in Bruges, appears to be a likely one. The printer may well have been proud of his former dignity as head of the English colony at Bruges; and one can readily believe that a sign used by him through so many strenuous and anxious years had become to him, in his retirement from business, endeared by many memories. It is just possible that the mysterious figures may stand for a crane and a rope twisted around the bar—a sign, in fact, like the *Three Cranes*, *The Ship*, or some other similar reference to business by the water side; for the English merchants received wool from England, and it was part of Caxton's duty to put his official mark on the bales as they were received in Bruges.

As I have pointed out in a former paper, though Caxton remained faithful to the Flemish "black letter" throughout his life as a printer, that type was giving way everywhere before the Roman letter based upon



Die Veneris Quinta pars Capitulum .xliij

NOw hangeth our lorde Jhesus on the crosse in grete payne & yet he is not ydel / by cause of that peyne. but he wrouzt al wey & spak that was profitable for vs. Wherfor to gangyng he spak seuen notable wordes that ben fouden written in the golpel the first was in the tyme. that they crucyfyed hym / whan he prayd for hem saying thue. Fader forgeue hem for they wotte nouzt what they done. the which word was a word of grete patyence. of grete loue & vnspeakable vnkyndnyes. The second was to his moder saieng thus. woman loo thy sone / & also to Johan / loo thy moder. he clepyd not his et that tyme moder. lest she shold thrugh fruent tendrenes haue ben more sory / The thyrd was to the bielid theef saying. thys day thou shalt be wyth me in paradise / wherin his most large mercy is openly shewed The fourth was whan he said Help holy lamazabatani. that is to say. My god why hast thou forsake me as though he sayd in this sentence My god & my lord of heuen thou hast so myhel loued the redēpcō of the world that thou hast geuen me therfore. and as it semed forsaken Lord Jhesu what comfort was that forsayd word to al thyn enemyes and what dyscomforte to alle thy frendes / Sothely as it semeth. there was neuer word that our lord spake that gaf so mihel boldenes to hys enemyes. & so myhel occasion to his frendes for to despayre that he was god. as that worde. for they vnderstode hit that tyme. but nakedly after the letter

Nō lepte verba dñi in cruce /

Primum vrbū Pē ignoce illis

Secundū Mulier ecce filius tuꝰ

Tertium : Hodie mecum eris

Quartum Holy holy lamazabatani.

¶.

A Page from Caxton's Edition of "Speculum Vitae Christi."
(This was the only book printed by Caxton on vellum.)

ancient writing. Before 1500 these founts had taken on forms differing very slightly from those now most commonly used, though the forms of the letters were generally finer and more artistic.

Title-Pages: Notes on a Celebrated Title-Page.

We have indeed reached the stage when the book had finally taken a settled form. As I have shown before,* the early printers completed each book by placing on record in the *last* paragraph the day, month, and year when the last page was set up, together with the printer-publisher's name and address—a custom copied directly from old manuscripts.

Now, however, it was felt to be more convenient to state these facts on the *first* page. As books became more and more elaborate, these title-pages gradually assumed great importance. They were the first to meet the eye, and it was fitting that they should be made as dignified and artistic as possible. As English artists could no longer compete with foreigners, many of the latter found it to their interest to take up their abode in this country, sometimes attached as designers and portrait-painters to the royal court, sometimes working hand-in-hand with the master-printers; and at times turning their skill to a multitude of uses. That magnificent artist, Hans Holbein, born at Grünstadt in 1497, was introduced to Sir Thomas More by Erasmus. Working in England as a portrait-painter for three years, his pictures were shown to Henry VIII., who, delighted beyond measure with his skill, took him into his service. Here he remained honourably employed until his death in 1554, leaving behind him some of the most magnificent portraits in the world.

Henry VIII., and indeed all the Tudors, protected scholars and artists, imitating in this respect the conduct of the Italian nobility. Caxton had been succeeded in London by Wynkyn de Worde, and that fine printer, Pynson, whose books are particularly prized for their artistic worth.

In 1521 Henry wrote his celebrated *Assertio Septem Sacramentorum*, in defence of the Catholic Church and in opposition to Luther—a book which delighted the Pope, and obtained for its royal author the title, "Defender of the Faith." It is not a very learned work, but, as was natural, it was presented to the world with a great flourish. Pynson cast his finest type, and Hans Holbein, the king's painter, was called upon to design the title-page. The arrangement of the lettering is somewhat unusual, but very effective, because it leaves empty spaces that contrast admirably with the crowded border.

It should be pointed out that, though wood-engraving had reached a high station on the Continent, the time and expense involved in colouring these outlines was too great to be continued when books became cheap, and were sold by the hundred where formerly they were sold by tens. But, as colour was no longer employed, designers began to make their blocks more and more elaborate, until the engravers on wood were unable to cut the lines sufficiently fine. But the engraver on *metal* can obtain the most complex net of lines with ease. The result might have been foreseen. Wood-engraving gave way gradually to metal-engraving, and soon after 1500 it had taken a secondary place in the decoration of books.

I shall return to this later. It is only necessary at this point to draw attention to the present title-page, with its border printed from a *wood engraving*. This is sufficiently interesting in showing to what heights that craft had reached.

On the left-hand side, near the middle of the border, the letters H H (Hans Holbein) may be seen.

Looked at as a mere design in decorative lines the border is entirely beautiful, the graceful masses and outlines being contrasted with the utmost knowledge. The design is more Italian than German in character; but this is not surprising. Italy had captured the artistic world; her art, based on a revival of ancient Greek and Roman decoration was everywhere accepted as the right thing. Architecture, dress, and book illustrations alike were Italian, *with differences* due to local pressure. German art has always been distinguished

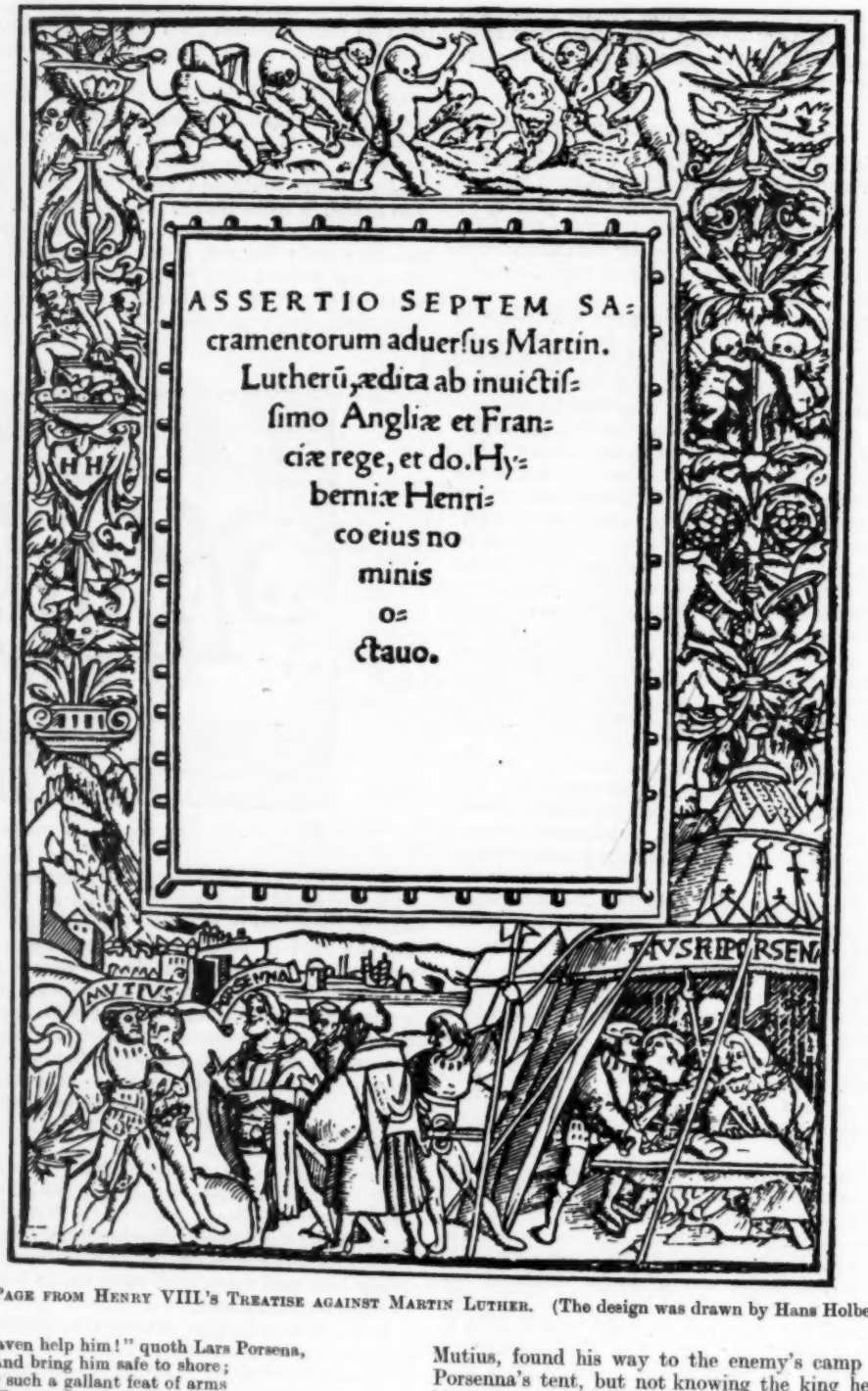
Caxton's "Device," printed in his later Books.

for its love of quaintness and rough humour, not always refined in subject, but strong and telling. Hans Holbein was no exception to the rule. It is a little startling to see the kind of border he designed for a theological work; it is still more startling to find it accepted as quite a fitting decoration of a king's pious performance, given under its full title, *Assertio Septem Sacramentorum adversus Martin Lutherum, œdita ab invictissimo Angliæ et Franciæ regé, et do. Hyberniæ Henrico eius nominis octavo.* (A defence of the seven sacraments against Martin Luther, drawn up by the most victorious King of England and France, and lord of Ireland, Henry the Eighth of that name.)

In the upper part of the border a number of active little creatures are seen dragging a dead bird: a scene drawn from the classic story of the fight between the Pigmies and the Cranes. The borders descending to the right and left are made up of leaves and fruit, with heads here and there, and more queer little creatures perched on high places.

Below is a scene also drawn from ancient story, or, rather, two scenes in one. The chief actors are conveniently labelled by their names written in floating bands above their heads—a necessary addition without which the design would be almost unintelligible. These names are Mutius and Porsenna, the Lars Porsena of Macaulay's "Lays," where the poet indicates the Etrurian's nobility in his wish to see his gallant enemy Horatius escape drowning.

* See *Practical Teacher* for November, p. 326.



TITLE-PAGE FROM HENRY VIII.'s TREATISE AGAINST MARTIN LUTHER. (The design was drawn by Hans Holbein.)

"Heaven help him!" quoth Lars Porsena,
"And bring him safe to shore;
For such a gallant feat of arms
Was never seen before."

The legend runs that when Porsenna besieged Rome, and was starving her inhabitants into submission, three hundred of the noblest Roman youth swore to kill the Etrurian king at all costs to themselves. One youth, Mutius, found his way to the enemy's camp and into Porsenna's tent, but not knowing the king he stabbed his secretary in error.

For this he was seized and put to the torture; but the unflinching manner in which he held his right hand in the flame until it was consumed moved the king, so that he pardoned him and sent him back in honour to the city. Wherefore Mutius was afterwards known as

Scævola (the Left-handed) as a title of honour. Not to be behindhand in generosity, Mutius warned Porsenna of his danger, thus putting him sufficiently on his guard.

On the right of the border Mutius is seen stabbing the secretary in Porsenna's tent, the king himself being seated by his secretary's side. On the left, Mutius cheerfully holds his hand in the flame, to the admiration of Porsenna and his followers.

I have drawn particular attention to the curious mixture of classic fable and legend in this border, because for nearly a century such conventional and meaningless motives were selected for title-pages, the object being entirely to design a framework that should be agreeable in line, artistic in workmanship, and instinct with the classical feeling. Lions, griffins, columns, fruits, cherubs, birds were used together without any reference to the lettering enclosed within the border. At the same time, examples could be cited where these figures may well be considered to have a remote bearing upon the subject of the book. For instance, George Chapman's brilliant translation of Homer's *Iliad* has, to the right and left of the title-page, the figures of Hector and Achilles; Sir Philip Sidney's *Arcadia* is introduced by a title-page in which Queen Elizabeth as Minerva and Sidney as a shepherd form the principal figures; Foxe's *Book of Martyrs* has its title-page surrounded with scenes connected with the Catholic and the Reformed Churches.

SUGGESTIONS FOR CONSTRUCTIVE WORK IN CONNECTION WITH OBJECT LESSONS.

BY FELIX T. KINGSTON, BARRY.

THE near approach of winter will give opportunity for seasonal studies in connection with ice and snow, to accompany which some handwork is outlined in this article.

It is not intended that all the following models should be made, but only one or two which harmonise best with the ideas underlying the lessons. If, however, the scope of the lessons allows, pupils should select the models which they prefer. It is not intended that all the pupils should make the same model at the same time—for example, while one prefers to construct a toboggan, another may choose to build a sledge.

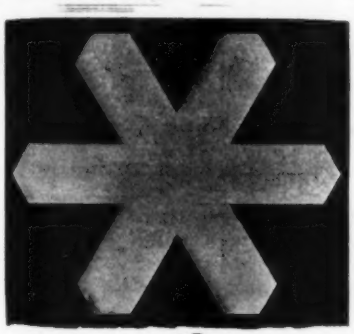


FIG. 1.

It is always preferable to use actual specimens as guides to the designing of models, for they can then also be made to scale. If the school museum does not already contain such specimens, pupils will readily co-operate in procuring them; where the real articles cannot be obtained, recourse can generally be had to pictures.

NOTES ON THE FIGURES.

1. Snow crystals seen under the microscope present a vast variety of hexagonal forms. Following an actual observation of snow with a lens of sufficient magnifying power, the pupils may cut out in paper or card a simple plane form similar to Fig. 1. Different scholars can choose different forms, approximating as closely as possible to those they have actually observed through the lens.

Subsequent ornamentation by the use of binding-strips or of covering paper is not necessary in a case like this, inasmuch as the purpose of making the model is chiefly to emphasise the scientific facts concerning crystallisation, and to connect them with appropriate geometrical work. A more articulate form than Fig. 1 should be worked by older scholars. In the lower divisions of the school, the work might also take the form of building up the shape by laying six strips of white gummed paper on a darker piece crosswise at 60°.

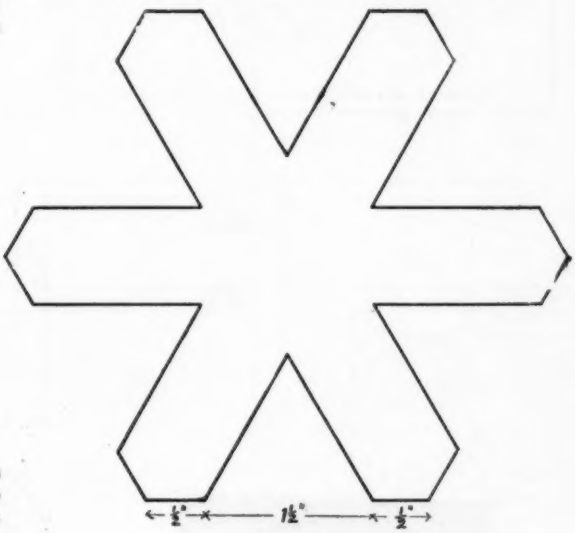


FIG. 1*a*.

2. Suppose the lesson is designed to lay stress on means of locomotion in Polar lands; then the making of a sledge will suggest itself. Fig. 2 shows a simple form, consisting solely of a flat board on runners, the material being thin card. Young children will find little difficulty with the drawing if they commence with the rectangle ABCD (Fig. 2*a*), and then draw lines as indicated parallel to AB, CD, at ⅓" distance.

To keep the runners perpendicular to the top, fix one or two bits of card underneath; cut as in Fig. 2*b* (shaded parts indicate waste card, as heretofore); apply glue, and fold at right angles before fixing. Fig.

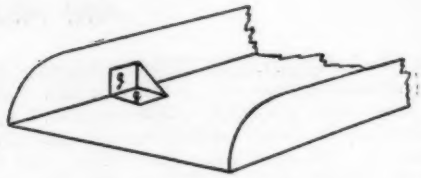


FIG. 2c.

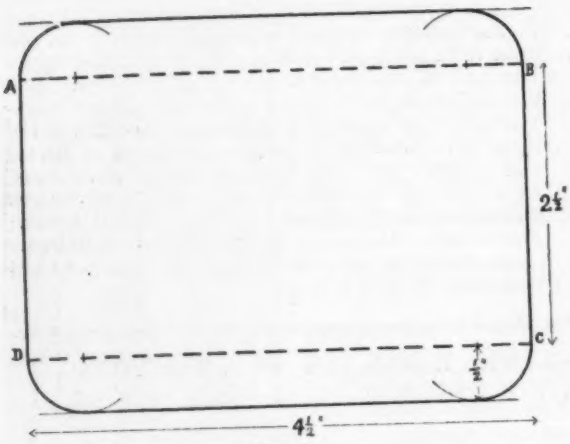


FIG. 2a.

FIG. 2b.

FIG. 2.

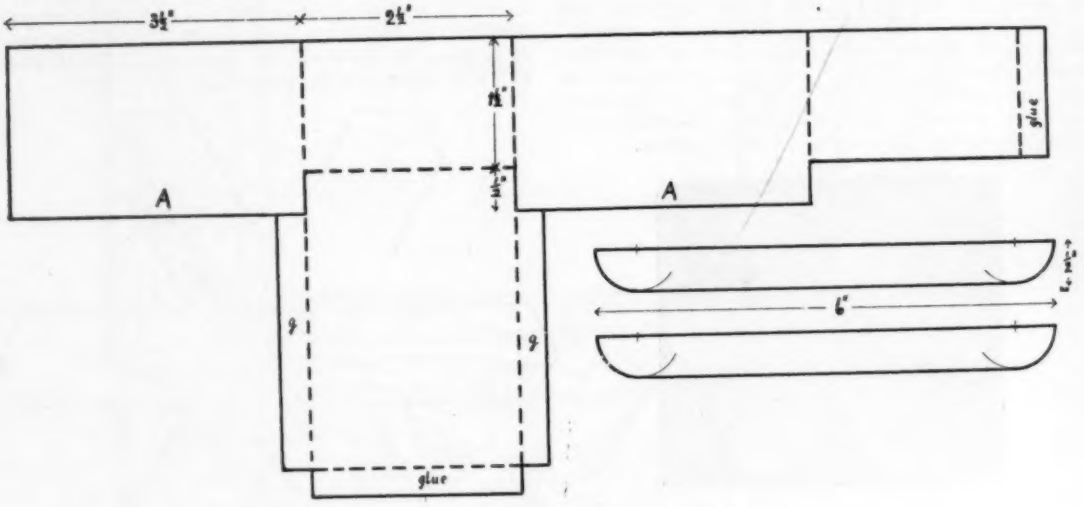


FIG. 3a.

FIG. 3.

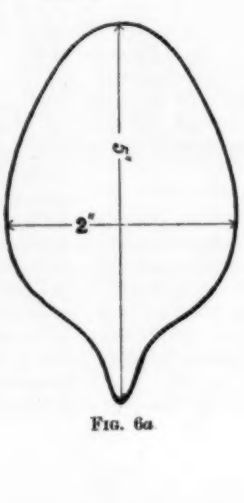


FIG. 6a

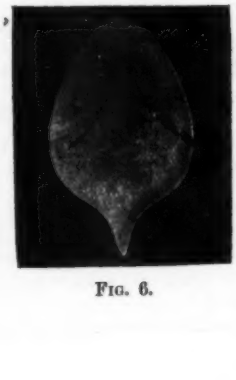


FIG. 6.

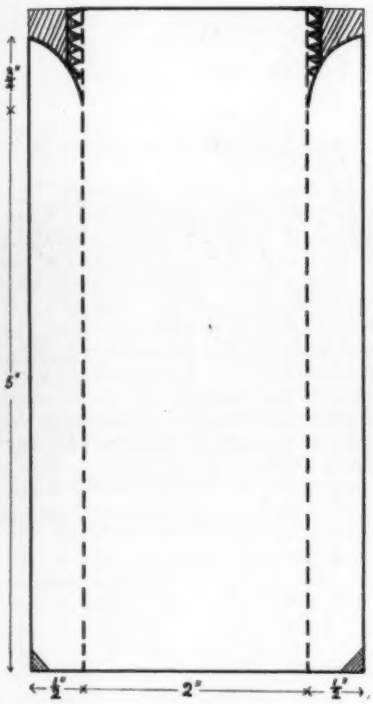


Fig. 4a.

Fig. 4.

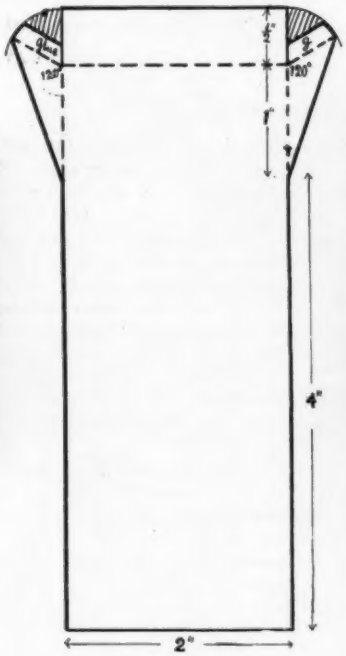


Fig. 4c.

Fig. 4b.

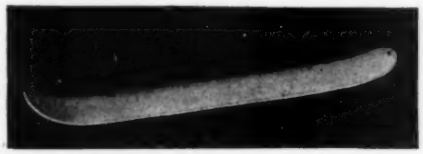


Fig. 5.

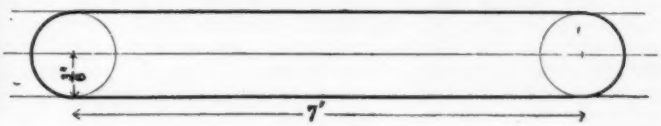


Fig. 5a.

2c is a view from underneath, showing one such piece fixed.

3. A somewhat more elaborate pattern of sledge is given in Fig. 3, where the runners are cut out separately and glued to the side of the box at A (Fig 3a). The material is card of medium thickness, the rounded ends of the runners being cut, as in the preceding model, with either scissors or knife. This model would also provide a suitable exercise for the light woodwork class, in which case the parts marked A would, of course, be omitted, and the runners be fixed flatwise to the base of the box.

The harnessing of a toy dog or reindeer to the sledge will help to kindle the imagination of the younger children. On some winter day succeeding a fall of snow it may be possible to use this, and other models mentioned herewith, in arranging an open-air tableau representing an Arctic scene.

4. Figs. 4, 4a, 4b, 4c are drawings of simple toboggans. The former is the prettier model, but the manipulation of the upturned curved front requires greater skill than will be generally found among children of the lower standards. Young workers will make this model in carton paper, while the older ones will use thin card. Before fixing, bend the card thoroughly by wrapping the end tightly round a wooden roller. Notch the flaps as shown. The curve is drawn freehand. It is necessary to keep the amount of curvature small, because it is difficult to bend card on a short radius without causing wrinkles in its surface. If the compass is used in setting out the curve, the centre must lie at a sufficient distance *outside* the lines forming the upper edge of the sides.

5. Fig. 5 is a model of a Norwegian ski. The pattern is merely suggestive. If the design here illustrated is adopted, it can best be made by first drawing a centre line (Fig. 5a), next adding the circles, and then drawing the tangents. Bend the model at the ends (see Fig.) to resemble as nearly as possible the genuine article.

6. Fig. 6 represents a Canadian snow-shoe. The transverse axes of the figure may be set out with ruler and set-square before pencilling the outline freehand. Two holes are pierced with a stout pin to receive bits of string for attaching the shoe to the wearer's foot.

As an aid to *intelligent construction*, the class should be led to understand details of models—for example, why the ends of the ski are turned up, and why higher in front than at the back; why the runners of the sledge are curved; why the front of the toboggan is raised; why the ski is narrower than the snow-shoe.

DRAWING IN PUBLIC ELEMENTARY SCHOOLS.

TILLMOUTH COUNCIL SCHOOL, CORNHILL-ON-TWEED.—III.

BY DAVID SUMMERSON.

Nature Drawing.

BEFORE the trees have burst into leaf the early spring flowers will have made their appearance. All are excellent for drawing purposes. A selection might be made from the snowdrop, crocus, tulip, wall-flower, lesser celandine, single daffodil, primrose, and narcissus. These should be drawn as *whole plants*, and it is a step further towards exact knowledge if the parts of the flowers, sections of the bulbs, and the seed-vessels are drawn, correctly coloured, and named. Cross and long sections of the seed-vessels of the tulip, crocus, snowdrop, and daffodil should be made, and preserved in small bottles of methylated spirits. These are useful in many ways. Our specimens were made four years ago, and are still quite good.

The plant may be drawn the natural size, but as a rule the parts of flowers, etc., should be slightly enlarged. Whenever the opportunity occurs, the attention of the children should be directed to the mode of growth. Take the snowdrop as an example. When first the flower-bud is "piercing its way through the snow" it is erect, and only the tips of the leaves, one on each side of the flower, are visible. In full bloom the flower droops, the flower stem is longer than the leaves, and all three grow gracefully out of the bulb. The contrast, again, between the fleshy, keeled leaf of the snowdrop, its blunted end tipped with white, and the sharp sword-like leaf of the crocus is very striking. Add colour to these—dull pale green in one case, glossy dark green and yellowish midrib in the other—and we find the difference again most clearly marked. After the snowdrop, crocus, and tulip have been drawn, the children will notice many differences, all capable of explanation in the Nature lesson. Just as careless, casual drawing of such simple things as snowdrop or crocus leaves is anything but satisfactory, so is any attempt at colouring to be condemned that does not strive after the exact tone.

There is only one way to get accurate work. The child must, by comparing the specimens before him, *realise the differences* that exist. If these are plain to him, the actual drawing will not be a difficult matter. To get the exact tone, he must try his colours, spending time over it if necessary, until he gets the right tint. The teacher can help him a great deal, not by actually telling him what is wrong and where the fault lies, but by questioning him in order to see that he understands why the drawing or the colour fails.

For successful work in this group we must depend more upon careful supervision of the individual's drawing than upon collective teaching, though such points as the foreshortening of leaves or continuity of line may be made the subjects of lessons to the whole class. These may be illustrated by a large-leaved plant like the aspidistra, the blackboard being freely used for demonstration.

The spring flowers mentioned above are a good preparation for the flowers of summer. The sweet violet and pansy, sweet pea and white clover, sliver-weed and wild strawberry, herb-robert and meadow geranium give us a good range of flowers and more difficult leaf-forms. Taken in this order, each subject is an advance on its predecessor in point of difficulty.

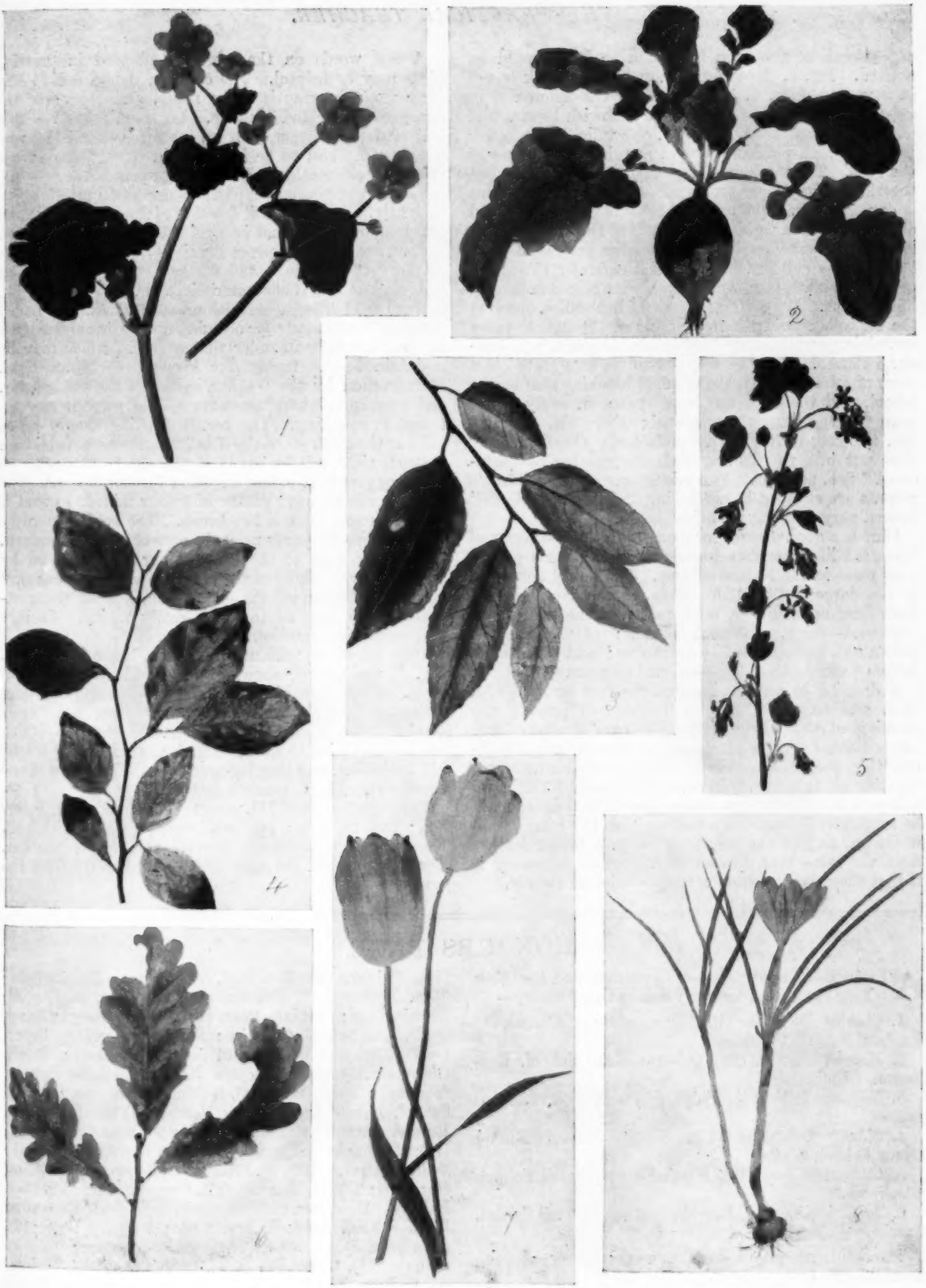
In white clover we should draw attention to the long, slender leaf stalk, the folded leaves, the fertilised flower head hanging downward, with its brown petals and green calyx, and the weak, straggling growth of the plant as a whole. In the herb-robert, we should notice the swelling where the leaves start from the stem, the reddish bases of the leaf-stalks passing into green, the pink flowers veined with red, the brownish-red calyx, and the ripening fruit with the tufted stigma at the head. The meadow geranium is beautiful in late summer. Browns, reds, and greens are delightfully mingled in the finely divided leaves, and the large, purple flower fittingly crowns this wayside favourite.

In autumn we may make our choice from the changing leaves of the beech, oak, Virginia creeper, or bramble, and the fruits of the hedgerows and forest trees. The children may suggest what will make good copies, and soon learn to choose nice compact specimens with leaves and fruit. The wild plum, crab apple, sloe—a very pretty thing both in leaf and fruit—bramble, hips, and haws, horse-chestnut, sycamore, and acorns, are easily obtained. With a little forethought, we may have these brought just when they are at their best for school use—that is, when the leaves show varying tints.

In winter there are the evergreens—ivy, laurel, mistletoe, Portugal laurel, holly, yew, fir and larch cones, and all through the dead season, winter buds to select from. Difficulty is sometimes experienced and time lost in distributing specimens, colours, and the various materials required for the lesson. If drawing follows the play interval, each child can bring his own spray into the room with him. Colour-boxes, brushes, water-pots and saucers may be laid out on the desks. Two large jugs, one of them filled with clean water, and extra tubes of colour from the school stock are placed on a spare desk in front of the class. As soon as the water in the holder gets discoloured it is poured out and clean substituted. If the boys know they may move about freely they will not abuse the privilege. Vaseline jars and similar small vessels make very good water-holders.

Unless the object is very simple it will be found impossible to complete it in one lesson of an hour's duration. This is of no importance when *one* large object serves the whole class; but when each child is drawing his own spray, it is laid aside if unfinished, and resumed on the following day. A slip of paper, numbered, is tied to the stem, and the sprays are placed in water until needed.

The examples on Plate I. show various plant forms. After Fig. 1, the marsh marigold, was drawn, the whole was washed over with clean water, the surplus water removed with blotting-paper, and the colour put on quickly. When a large surface has to be covered, this damping allows the colour to flow easily and smoothly. Fig. 2, a turnip, was treated after the same manner. Fig. 3, the Portugal laurel, shows the red line at the bottom of each leaf, the red stem and midrib, and the bud in the axil of the leaf. The high light on the leaves should be suggested by washing out with the brush after the colour is dry. Fig. 4, beech in autumn. The zig-


1
2
3
4
5
6
7
8

zag growth of the twig from bud to bud should be noticed. Fig. 5, flowering currant. Fig. 6, oak leaves in autumn. Figs, 4, 5, and 6 show the differences in colour of the stems—dark brown, yellowish brown, and dull green respectively. Fig. 7, the tulip. The flower is flushed with pink at the tips, merging into yellow at the base. These colours are put on thinly, and washed together. The deeper tint is laid on after the under-tint is dry. In Fig. 8 the only difficulty is to get the faded sheath correct in tone. The midrib of the crocus leaf is left white, the yellow being added after the rest is dry.

When the children have worked carefully through a course on plants, they will be keenly interested in tracing life-growths. We use small cases of butterflies, showing the food-plant and the four stages of the insect, tubes containing germinating peas, beans, or grain, and hyacinth glasses. Once we were fortunate enough to get a score of salmon ova on the point of hatching sent to the school, and the little fish were drawn in every stage, from the egg until they were six weeks old. At this age, the yolk having been satisfactorily absorbed, they were put into the Till, to swell the number of "educated" fish, perhaps. As a good many of our children's parents are engaged in net-fishing, "salmon problems" proved very exciting for a few weeks.

Ours is a good district for game birds and all forms of feathered life, therefore lessons on birds have a prominent place in the Nature scheme. The school collection is not large but includes birds of the river—heron, moor-hen, coot, dipper, wild duck; of the marsh and moorland—snipe, woodcock, curlew; of the woods—brown owl, missel thrush, woodpecker; and of the open fields—rook, fieldfare, lapwing, and common gull.

A drawing of a single feather, the foot or head of a bird, and an extended wing might well precede the drawing of the whole bird. The careful study of a single feather reveals points apt to be overlooked without this preparatory work. The stout, round quill, tapering off to a fine, thin line; the careful blending of colour; and the soft, light appearance of the edges should be truthfully shown. If a feather from the wing or tail is drawn, and in the following lesson a breast feather from the same bird, the children see how necessary it is that they should examine their specimens closely.

A few words on the methods adopted in drawing birds may be helpful. The children should decide how large their drawing is to be made, and mark out the extreme length and breadth. We used to run a thin line round the paper, half an inch from the edge, and the drawing had to be kept within these bounds; but this is a weak method long ago outgrown. After "spacing out," the general proportions are noted and blocked in lightly. A light pencil drawing of the contour follows. Hard, sharp lines must be avoided throughout. When the general shape is correct, details—such as the position of the eye, the wings, tail feathers, scale markings on the legs and feet if characteristic, as in the rook, the bill, and the chief differences in colour—are added. The pencil drawing is now ready for cleaning up. The rubber must be used carefully in order that a good surface may be maintained—one reason for keeping the lines light. Examination by the teacher, criticism by the scholar, and correction where necessary should precede any attempt at colouring. The pencil drawing should be as good as the child can make it before any colour is laid on.

Much time will be saved if the chief colours to be used are prepared before anything further is done. The children should have plenty of colour mixed, so that it will run freely from a full brush. The colours may be tried on slips of paper until the correct tone is obtained. The lighter tints of the same colour are produced by adding water. Some of the children will be rather slow at first in hitting off the exact tone, but let them experiment so long as they are really trying. Facility will come with practice.

Plate II. shows various birds. Fig. 1, the brown owl. Fig. 2, the kestrel, showing the outside and inside of wing. These two birds of prey have strong legs and claws and powerful beaks. Fig. 3, the rook, not "coal-black," but with a bluish gloss on the plumage, which the boy has tried to show. Fig. 4, the snipe; has a long bill for boring, and long legs and toes. Fig. 5, the short-eared owl. Fig. 6, peacock feather.

The eggs on Plate III. are (1), guillemot; (2), moor-hen; (3), lapwing; (4), sandpiper; (5), herring gull. No drawing is necessary beyond the simple contour. The markings on the eggs are put in directly with the brush.

HONOURS PAGE.

APPROPRIATE awards for Christmas and the New Year are gained for good studies in colour by—

1. Charles Beamish (13), Bromborough Church of England School, Cheshire.

2. Roland Shinton (12), Osborne Road School, Erdington, Birmingham.

3. William Bell (11), Sulyard Street School, Lancaster.

4. Sidney Osbourne (13), North Walsall Higher Grade School, Staffs.

5. Clifford Wilson (12), South Shore Council School, Blackpool.

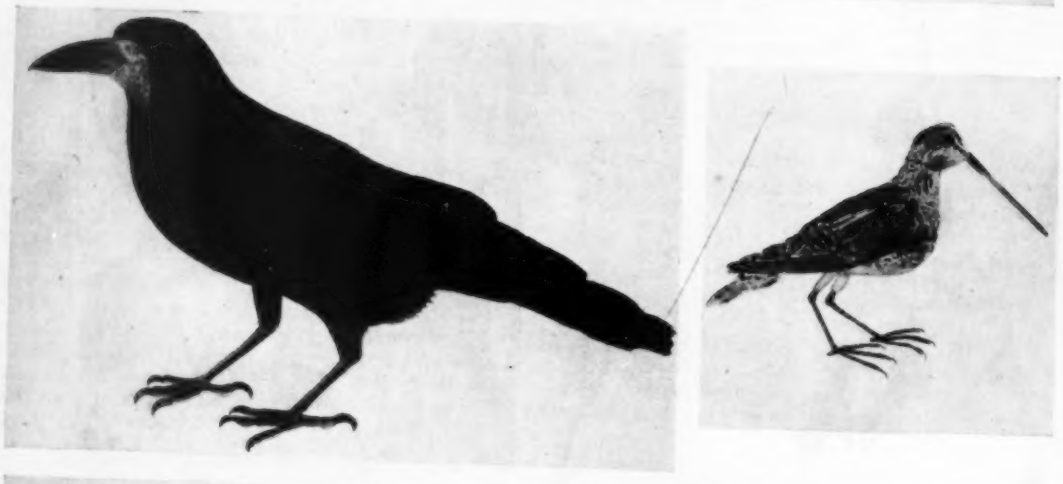
6. Ada Fielding (13), Beresford Street Council School, Camberwell, S.E.

The following pupils sent in work worthy of commendation:—

Donald Middleton (13), Osborne Road School, Erdington, Birmingham; Albert Smith (13), Osborne Road School, Erdington, Birmingham; Alfred Petrie (13), Osborne Road School, Erdington, Birmingham; John Forsey (12), Osborne Road School, Erdington, Birmingham; William Peers (13), Bromborough Church of England School, Cheshire; May Hodgson (14), Bromborough Church of England School, Cheshire; Eileen O'Sullivan (13), Bullingham Roman Catholic School, Hereford; Joan Balfe (14), Bullingham Roman Catholic School, Hereford; Dorothy Newbold (14), Bullingham Roman Catholic School, Hereford; Dorothy Harford, (14), Bullingham Roman Catholic School, Hereford; William Hurley (14), St. Elizabeth's School, Bullingham, Hereford; Dudley Morden (11), Clarendon Road School, Ashford, Middlesex; William A. Gill (15), Clarendon Road School, Ashford, Middlesex; Stanley Dale (12), Clarendon Road School, Ashford, Middlesex; Charles Coomer (14), Clarendon Road School, Ashford, Middlesex; John Elliott (13), North Walsall Higher Grade School; Joseph Burt (10), New Herrington Board School, Fencehouses, Durham; John Carr (11), New Herrington Board School, Fencehouses, Durham.

DRAWING IN PRIMARY SCHOOLS.

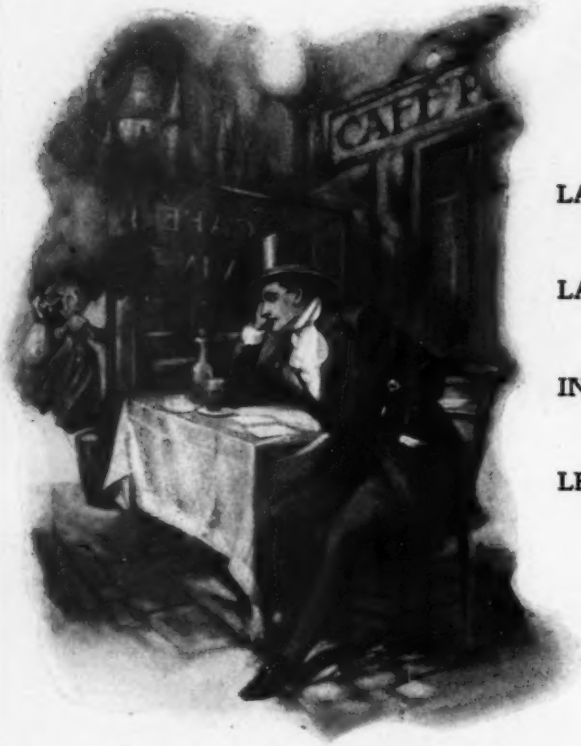
HONOURS PAGE.



SUGGESTIONS FOR NATURE STUDIES.

COLLECTION NELSON

DAINTY SOUVENIRS FOR THE FESTIVE SEASON.



Frontispiece "Le Comte Kostia."

Now Ready.

LA PEAU DE CHAGRIN; LE CURÉ DE TOURS; LE COLONEL CHABERT.—Balzac. Introduction by Henri Mazel.

LA CAMPAGNE DE RUSSIE.—Général Cte Philippe de Ségur. Introduction by le vicomte E-M. de Vogüé (*de l' Académie française*).

INTRODUCTION À LA VIE DÉVOTE.—S. François de Sales. Introduction by Henry Bordeaux.

LETTRES DE MON MOULIN.—Alphonse Daudet. Introduction by Charles Sarolea.

LES MORTS QUI PARLENT.—Vte E.-M. de Vogüé (*de l' Académie française*). Introduction by Victor Giraud.

MON ONCLE ET MON CURÉ.—Jean de la Brète. (149th Edition.) Introduction by Mme Félix-Faure Goyau.

ANNA KARÉNINE.—Léon Tolstoi. Introduction by Emile Faguet (*de l'Académie française*). (Two volumes.)

NAPOLÉON INTIME.—Arthur Lévy. Introduction by François Coppée.

LES FRANÇAIS DE MON TEMPS.—Vte G. d'Avenel. (8th Edition.) Introduction by Charles Sarolea.

LES ROQUEVILLARD.—Henry Bordeaux. Introduction by Firmin Roz.

MORCEAUX CHOISIS.—Maurice Maeterlinck. Introduction by Mme Georgette Leblanc.

LE COMTE KOSTIA.—Victor Cherbuliez (*de l'Académie française*). Introduction by M. Wilmotte.

Frontispiece "Anna Karénine."

THOMAS NELSON AND SONS,

35 and 36 Paternoster Row, London, E.C.; Edinburgh, Leeds, Dublin, and New York.

REDUCED SPECIMEN OF BACON'S

SCHOOL WALL MAPS, CONTOUR EDITION

SPECIMEN MAP FROM G. W. BACON'S

The Lakes are coloured Blue, irrespective of their depth.

BACON'S GEOGRAPHICAL ESTABLISHMENT

3/6 CORRESPONDENCE COLLEGE ATLAS
1/- EXCELSIOR CONTOUR ATLAS

CONTOUR MAPS AND ATLASES

THE CORRESPONDENCE COLLEGE ATLAS

PRICE THREE AND SIXPENCE.

Crown Quarto (7½ by 10 inches) bound in Cloth.

Containing 76 pages of Maps, 55 views (on 24 pages) of different parts of the British Empire and a Complete Index.

There are 48 pages of Maps of all the chief divisions of the World with the conventional Political Colouring. Thirteen pages of Maps with Orographical or **Contour** Colouring, viz :—

World	Africa	Australia	Ireland
Europe	North America	England and Wales	India
Asia	South America	Scotland	Canada
		New Zealand	

Fifteen pages (25 Maps), coloured to show distribution of Rainfall, Vegetation, Isotherms, Isobars, Wind, etc., etc.

THE EXCELSIOR CONTOUR ATLAS

PRICE ONE SHILLING.

Size Crown Quarto (7½ by 10 inches) strongly bound in Limp Covers.

Containing Sixteen General Maps of the principal countries of the World with Political Colouring Thirteen pages of Maps as in above atlas, with Contour Colouring. Fifteen pages (25 Maps) coloured to show distributions of Rainfall, Vegetation, Isotherms, Isobars, Wind, etc, etc. And an index to 1,600 names.

THE EXCELSIOR SERIES OF SCHOOL WALL MAPS

OROGRAPHICAL OR CONTOUR EDITION.

Size about 4 by 5 feet, strongly mounted on Rollers and Varnished.

PRICE FIFTEEN SHILLINGS.

The series consists of

World (Hemispheres)	Africa	England	South America
Europe	Australia	Scotland	*India
Asia	North America	*Ireland	*Australasia
	*New Zealand	Canada (30 by 40 ins. price 6s.	

**In Preparation.*

Write for Complete Catalogues to

Dept. P.T.

G. W. BACON & CO., Limited,

127, STRAND,

LONDON.

Teachers and Degrees.

AN APPRECIATION OF A PROGRESSIVE INSTITUTION.

IN secondary as well as in elementary schools of to-day the percentage of teachers possessing university degrees is far in excess of what it was twenty years ago. This welcome state of things is the result of several causes. In part it is due to the remarkable development of education during the past two decades, and to the realisation by educationists that in order to attain to the high standard of present-day education teachers should be equipped not only with a sound practical training in teaching, but also with a considerable amount of academic knowledge. The increasing keenness of competition also has played an important part. The position of affairs to-day shows that university graduates are slowly but surely pushing their degreeless colleagues to the wall; for, other things being equal, preference will always be given to the holder of a university degree.

Until recently many difficulties stood in the way of teachers, particularly elementary teachers, who aspired to a university degree; but gradually the way has been cleared, and with the facilities now offered a university degree is within the reach of nearly every teacher. No institution has done more to render the path to a degree easy than University Correspondence College, which, considered from this point of view, may fairly lay claim to be a national institution. But University Correspondence College has done more than provide such facilities. It has been a potent factor in recent educational progress, inasmuch as it has actually created a demand for university degrees. In this connection the following figures will be found suggestive. The number of University Correspondence College successes at the London B.Sc. examination in 1901 was 99, which exceeds the total number of passes (96) at this examination in 1895, and the total number of candidates (91) in 1888. In fact, the large increase in the number of candidates dates from the year 1887, when Dr. William Briggs founded University Correspondence College.

In our December issue of the year 1899 we published an account of the early history of University Correspondence College, its rapid development, and the methods by which its work was conducted. A new generation of readers, as also a new generation of students, has now succeeded the old; and a further reference to University Correspondence College, containing an account of its development since that time, will doubtless prove of interest to many of our readers, some of whom are ready enough to give the University Correspondence College full credit for a great deal of their professional success.

When our representative visited Cambridge in 1899, University Correspondence College was well established at Burlington House, with a resident staff of tutors. For the previous ten years its students had gained 6,772 successes at the University of London. Yet during the succeeding ten years the successes of University Correspondence College students at London University reached the number of 10,276, giving an indication of the remarkable continued development of the College, and incidentally of the confidence it enjoys. Moreover, some indication of the quality of these successes is given by the fact that during the past twenty-one years no fewer than 302 first-class honours have been gained by University Correspondence College students. But not only has the College developed so far as London University successes are concerned; it has from time to time instituted courses for examinations other than those of London University, thereby finding new scope for its energies and wonderful organisation.

No more solid tribute could be paid to University Correspondence College than that implied in the following extract from the official Report of the recently-appointed Royal Commission on University Education in London, of which the Right Hon. R. B. Haldane, K.C., M.P., was President:—

> "149. In reply to the question, 'Is it the case that the University (of London) Correspondence College is the most successful institution in the University as far as degree-producing powers go?" the witness explained that the University did not put the name University Correspondence College on its lists, but suggested that the University Correspondence College might claim 'more students for every degree in London University than any other' College.
>
> "150. (Question.) "But it should affiliate it as a College of the University if it is doing university work.'—'It names University College and King's College as the colleges students come from, but not University Correspondence College.'
>
> "151. (Question.) 'Which still remains the most successful of them all?'—'Which still remains the most successful of them all, though the University will not recognise even its name on its lists.'"

Probably no university college in existence shows such high average and collective academic distinction in its staff as University Correspondence College. Of the thirty resident tutors, twenty-three are graduates in first-class honours; eleven London graduates are also members of the Universities of Oxford or Cambridge, and six are Cambridge University wranglers.

Perhaps the strongest testimony to the excellence of University Correspondence College teaching staff is the fact that it has for many years been regarded by university colleges and examining bodies as a recruiting-ground for their own teachers and examiners. For instance: of former University Correspondence College tutors the current list of London University Examiners contains the names of no fewer than ten, of whom three are themselves old University Correspondence College students; four others occupy important chairs in English universities; and another is a professor at a colonial university. It is obvious that by securing tutors of this type the College can safely guarantee the soundness of its courses and the provision of the best instruction available.

In the space we have at our disposal we cannot adequately describe all the advantages offered by University Correspondence College. We propose, however, to give a fuller account of its activities in a later number, as we are, in the face of much hostile criticism, distinctly in favour of correspondence tuition for teachers. Meanwhile it will suffice to state that we consider the foundation of its successes lies in the fact that its tutors

are men of the highest academic distinction, and that they are resident and give their whole time and energies to the work of the College; they meet daily, and co-ordination of the general scheme of studies is thus obtainable. This constant intercourse between the tutors also renders possible discussion of the latest phases of examination syllabuses and the adaptation of the courses of instruction to meet the newest requirements.

It must not, of course, be forgotten that without at least fair natural ability the student cannot hope to distinguish himself in his examination; but whatever natural ability the student may possess he can depend upon University Correspondence College to bring out and develop. For success at examinations another important factor is the student's temperament. His tutor's corrections are bound to have considerable influence on the character of his work; while the frequent dispatches of his lesson papers form an effective stimulus to study. In addition, University Correspondence College does not cease to take an interest in its students after they have successfully completed their studies. In the interests of present and past students it conducts the University Correspondence College Bureau, through which teachers seeking appointments are put in touch with those most suitable for their attainments.

The Editor of this journal can speak from first-hand experience of the excellent quality of the tuition afforded by the College. It is straightforward, thorough, and effective; and the tutors show their love of their pupils by a severity which is beyond reproach.

A FIRST LESSON ON ELEMENTARY FACTORS IN ALGEBRA.

BY P. H. WYKES, M.A.

IN this lesson it is assumed that the pupil has been taught the first four simple rules, the use of brackets, and how to find the H.C.F. of monomials. It will not, therefore, be necessary to deal with the very elementary case of the factorisation of a monomial, a knowledge of which is clearly essential for finding the H.C.F. of monomials. The two types which can conveniently be dealt with in the first lesson are :—

1. The type in which the expression to be factorised has a monomial factor.

2. The type in which the expression is the product of two binomials.

In most elementary text-books this latter type is subdivided into several other types, each of which is treated in an entirely different way. What these types are can be easily seen from the following examples of them :—

(*a*) $ax - ay + bx - by$. (Expression of four terms.)
(*b*) $x^2 + 11x + 30$. (Trinomial—last term + *ve*.)
(*c*) $x^2 + 11x - 26$. (Trinomial—last term − *ve*.)
(*d*) $3x^2 + 7x - 10$. (Trinomial—coefficient of highest power not unity.)
(*e*) $25x^2 - 4$. (Difference of two squares.)

If one may venture to use an analogy, each of these types may be considered as a locked drawer with a special key, the proper use of which will display the factors within. No one, I hope, will quarrel with me when I say that if an average boy has five different keys which fit five different locks, the keys being somewhat similar, he is liable to use the wrong key. It is hoped in this lesson to give to the pupils a master-key which will be useful in every case. It should be borne in mind that the process of factorisation is the opposite of the process of multiplication, and the subject should be considered from this point of view.

The teacher should begin the lesson by writing on the board the product of $2a + 5b$ by $3c$—the working, of course, being done by the pupils. After this appears on the board, questions of the following type should be asked :—

(I might here remind readers that, as in previous articles, I set down only the *ultimate* answer to each question.)

Teacher. What is the product of $2a + 5b$ and $3c$?
Pupil. $6ac + 15bc$.
Teacher. What is the H.C.F. of the two terms of the product ?
Pupil. $3c$.
Teacher. How many times does $3c$ go into $6ac$?
Pupil. $2a$ times.
Teacher. How many times into $15bc$?
Pupil. $5b$ times.
Teacher. How many times, therefore, into $6ac + 15bc$?
Pupil. $2a + 5b$ times.
Teacher. What, then, are the factors of $6ac + 15bc$?
Pupil. $3c(2a + 5b)$.

The corresponding work now appears on the board. (See blackboard work.) The teacher can here point out that finding the factors is the opposite operation to multiplication—that is, given the *answer* to a multiplication sum, find out what the multiplication sum was. Now the teacher should start with Exercise 2 (see blackboard), and having elicited the H.C.F. of the two terms, proceed similarly to find the factors. When the factors have been found and appear on the board, the teacher should not fail to ask questions, to make sure that the pupils clearly see (1) that there are three factors—namely, 7, b, and $b - 2a$; (2) that 7 goes into the original expression $b(b - 2a)$ times, that b goes $7(b - 2a)$ times, etc.; and (3) that the result may always be verified by multiplying.

In a similar way Exercise 3, and perhaps several others, would appear. A quarter of an hour is quite sufficient time to deal with the teaching of monomial factors. The class should now be able to see that, when one of the factors of an expression is a monomial, the discovery of that factor and of the remaining factor is an easy process, and is equivalent to finding the H.C.F. of the separate terms. They should be warned always to be on the lookout for a monomial factor in every expression to be factorised.

Teacher now writes on the blackboard the product of $a - b$ and $c + d$, and, when this appears, asks :—

"What is the product of $a - b$ and $c + d$?"
Pupil. $ac - bc + ad - bd$.
Teacher. Now, on the right-hand side of the board we will go through the process of finding the factors of this expression. How were the first two terms obtained ?
Pupil. By multiplying $a - b$ by c.
Teacher. How were the last two terms obtained ?
Pupil. By multiplying $a - b$ by d.
Teacher. What expression, then, was multiplied ?
Pupil. $a - b$.
Teacher. And what was the multiplier ?
Pupil. $c + d$.

By this time the factors appear on the blackboard, and Example 5 is then written down.

Teacher. $3x - 6y + ax - 2ay$ is the result of some multiplication. How did the first two terms occur ?

Pupil. By multiplying $x - 2y$ by 3.

Teacher. And the last two ?

Pupil. By multiplying $x - 2y$ by a.

Teacher. What expression, then, was multiplied ?

Pupil. $x - 2y$.

Teacher. And the multiplier ?

Pupil. $3 + a$.

The corresponding work appears on the blackboard as this is developed. When the factors in Exercises 4 and 5 are obtained, the teacher should ask for the product of the first and last terms of the original expressions and of the second and third terms, and the pupils will naturally observe that in each case the product is the same. Here the teacher should point out that the four terms of the product do not always *separately* appear, owing to two of them being collected into one term (or to zero). This is done by multiplying $2x - 3$ by $x + 4$. (See blackboard.)

Teacher. Suppose we had not collected the terms, but had left the product as $2x^2 - 3x + 8x - 12$. How would you proceed to factorise ?

Pupil. The same way as before.

Teacher. What is the product of the first and last terms ?

Pupil. $-24x^2$.

Teacher. And of the second and third ?

Pupil. $-24x^2$.

Teacher. If we were asked to factorise $2x^2 + 5x - 12$, how can we find the two terms which, collected, form $5x$?

This question will certainly present difficulty to the class, and some explanation may be necessary. The teacher can point out that $5x$ is equivalent to a good many sets of two terms—for instance, $-4x$ and $9x$, $3x$ and $2x$, $-3x$ and $8x$. It is probable that some clever boy may now be able to formulate a rule for discovering the two terms which have collected to form $5x$; but if not, it will be necessary for the teacher to point out that $5x$ must be equivalent to two terms whose product is $-24x^2$—that is, $-3x$ and $8x$. The expression is then written down as four terms, and is factorised exactly as in Exercises 4 and 5.

Then Example 7 appears on the board, and the factors are obtained by the same method as in Exercise 6, the two important questions being :—

(*a*) What is the product of the first and last terms ? ($-84x^3y^2$.)

(*b*) What two terms are equivalent to $-25xy$, whose product is $-84x^2y^2$? ($-28xy$ and $3xy$.)

Various examples may now be worked with the class, including those of the "difference of two squares" type, which can certainly be first approached by the method of this lesson, though ultimately pupils will see for themselves the easy method of at once writing down the factors.

The following hints may also be found useful :—

1. The three terms of a trinomial are in their proper order for factorising when the product of the letters in the first and last is equal to the square of the letters in the middle term.

2. When the terms are in order the questions (*a*) and (*b*) [see above] may be put in the following simple form :—

(*a*) What is the product of the first and last numbers ? (84.)

(*b*) What two numbers multiplied give 84 whose *difference* is 25 ? (28 and 3.)

Then the pupils write $-25xy$ down as two terms in which 28 and 3 occur.

3. The pupils should be trained to find two numbers whose product and sum or difference is given *systematically* on paper (their margin, for preference), and should not guess. For example : What are factors of 72 whose difference is 1 ?

1 × 72 is useless, for difference is 71.
2 × 36 ,, ,, ,, 34.
3 × 24 ,, ,, ,, 21.
4 × 18 ,, ,, ,, 14.
5 (does not divide into 72).
6 × 12 is useless, for difference is 6.
7 (does not divide into 72).
8 × 9. The difference is 1.

The pupil does not write all this down, but he should be taught to go through this process in his mind, and his work in the margin will probably appear as :—

~~1.72~~
~~2.36~~
~~3.24~~
~~4.18~~
~~6.12~~
8. 9

A modification of this applies in the case of very large numbers.

BLACKBOARD WORK.

Finding Products.

$$\begin{array}{r} 2a + 5b \\ 3c \\ \hline 6ac + 15bc \end{array}$$

$$\begin{array}{r} a - b \\ c + d \\ \hline ac - bc \\ \quad + ad - bd \\ \hline ac - bc + ad - bd \end{array}$$

$$\begin{array}{r} 2x - 3 \\ x + 4 \\ \hline 2x^2 - 3x \\ \quad + 8x - 12 \\ \hline 2x^2 + 5x - 12 \end{array}$$

Finding Factors.

(i.) $6ac + 15bc = 3c(2a + 5b)$.
(ii.) $7b^2 - 14ab = 7b(b - 2a)$.
(iii.) $6x^2yz - 9xy^2z + 12xyz^2$
$= 3xyz(2x - 3y + 4z)$.
(iv.) $ac - bc + ad - bd$
$= c(a - b) + d(a - b)$
$= (a - b)(c + d)$.
(v.) $3x - 6y + ax - 2ay$
$= 3(x - 2y) + a(x - 2y)$
$= (x - 2y)(3 + a)$.
(vi.) $2x^2 + 5x - 12$
$= 2x^2 - 3x + 8x - 12$
$= x(2x - 3) + 4(2x - 3)$
$= (x + 4)(2x - 3)$.
(vii.) $12x^2 - 25xy - 7y^2$
$= 12x^2 - 28xy + 3xy - 7y^2$
$= 4x(3x - 7y) + y(3x - 7y)$
$= (4x + y)(3x - 7y)$.

THE "WELLCOME" PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, 1911.—The "*Wellcome*" *Exposure Record and Diary* continues year after year to hold its place in the affections of photographers all over the world. It is essentially a book for the pocket, and is the most handy epitome of photographic art and practice up-to-date that one could wish to possess. The articles contained in the literary portion of the 1911 edition include directions concerning negative-making, factorial, time, machine, tank, or stand development, bromide printing, toning, and intensification, colour photography, and the making of ozobrome or bromoil prints. In the latter portion of the book the problem of exposure is taken up in a very thorough and ingenious manner. To the inside of the cover is attached the "Wellcome" Exposure Calculator with its movable disc, which enables the correct exposure to be determined under all conditions of light and scene by a single turn of the scale. In response to the wish of those amateurs who adhere in practice to one particular brand of plate or film, a special slip for attachment to the disc may now be obtained, which indicates the correct exposure for every stop. This attachment is supplied gratis (on application) to purchasers of the book by the publishers. Another new feature of this year's edition is the special article on colour photography, in which a simplified method of producing the necessary solutions is given. For the convenience of its world-wide readers and users, the "*Wellcome*" *Exposure Record and Diary* is published in three editions—namely, the Northern Hemisphere and Tropics, the Southern Hemisphere and Tropics, and the United States of America. When purchasing, care should be taken to specify which edition is required. The "*Wellcome*" *Exposure Record* may be obtained from all photographic dealers and booksellers, and at all railway bookstalls, and the price in the British Isles is only one shilling.

OUR PHOTOGRAPHIC COLUMN.

DEVELOPMENT IN THE TANK.

BY THOMAS A. BRIGGS.

IN writing these articles I am making a consistent effort to avoid annoying and unnecessary details. Too many of the makers of materials issue instructions which seem intended to frighten the amateur photographer from his favourite hobby. I have found that, with ordinary intelligence and a little care for cleanliness, perfectly good results can be obtained. However, even the "old hand" need not despise any new method which lightens labour and ensures success, even though it be dubbed "machine work."

Tank development is, perhaps, the greatest labour-saving device introduced since the beginning of photography. It is based on the theory that, given a fairly correct exposure, a certain known time of development will produce the best negative from a plate or film, temperature being taken into account. The idea that the negative can be improved by adding to, or altering the solutions, has practically disappeared.

In the tank system you place the plate, or film, in a tank, pour in the developer (which is sold in correct "doses," or powders), allowing it to remain for a certain number of minutes, then fix and wash. The negatives are taken out and then dried. From the time the plate is placed in the tank until it is taken out ready for drying it never sees the light. This is a great advantage, for there is no chance of fog, stains, or finger-marks.

I will give a brief outline of the Kodak Company's "all in daylight" system; for this company has done more than any other to popularise tank development. After the spool of film is used up in the camera it is taken out and placed in the winding-box. This is a light-tight box, in which are two spindles. On one is rolled the apron—a long strip of deeply-dyed celluloid with rubber edging—and on the other spindle is a metal reel. The spool of film is carried on two pins in another part of the box. The film and the apron are both wound on to the reel at the same time, thus forming alternate layers in the form of a "roly-poly" pudding. The whole reel full of film may now be taken out in broad daylight and placed in the tank, which is a light-tight and water-tight cylinder. The developer has been placed in beforehand, and water has been poured in up to a certain mark. The film remains in the solution for a certain time—usually twenty minutes—according to the temperature of the solutions.

The tank must be turned over several times during development, to ensure the liquid acting on the film evenly. The lid is removed; the contents rinsed out, and the film is taken out and fixed in a porcelain dish. The Kodak Company do not recommend that the film be fixed in the tank, as this might contaminate the metal for future use.

The whole of the apparatus is shown in Fig. 1, where the apron is seen partly unrolled from the reel, while the developing tank is shown at the rear with the lid removed. When not in use the whole of the gear packs into the wooden winding-box.

Thus you will see the whole operation is carried on in any ordinary room in daylight, and with practically no apparatus additional to the tank and machine. As the powders are only twopence each, and each will develop twelve postcard-sized negatives, the cost of working is not very serious. A friend of mine, who was quite ignorant of photography, took about sixty negatives while on his holidays, and developed them by the machine. Fifty-five of them were splendid, and gave excellent prints. After having used the ordinary

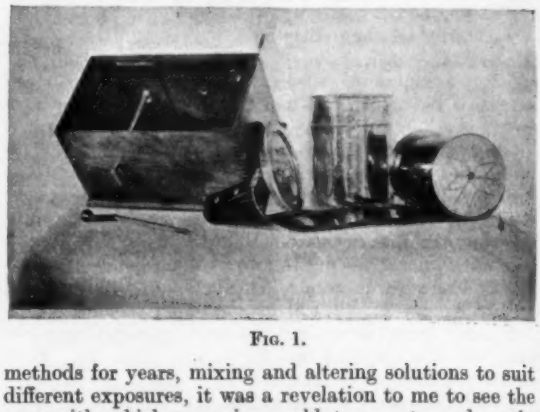


FIG. 1.

methods for years, mixing and altering solutions to suit different exposures, it was a revelation to me to see the ease with which a novice could turn out good work. The fixing solution should be made up in a large bottle, as it will keep indefinitely; it should be made as follows:—

Hyposulphite of Soda ("Hypo"), 5 oz.
Water, ... 1 pint.

This should be mixed up some time before using, as the solution formed is very cold. A little warm water used in mixing is an advantage, as it helps to melt the hypo. Do not stint the amount of hypo used, as it is very cheap; and it is best not to use it a second time, so that stains may be avoided. The milky deposit on the negative will disappear in about ten minutes, and the film should remain in the hypo about twice this length of time.

There are many makes of tanks for glass plates on the market; and all of them, with the exception of the "Watkins," have a vertical rack for six or twelve plates. They are generally of brass, nickel-plated, and have a water-tight lid, as in the case of the film tank. The plates are placed in the rack in pairs, back to back, and very little solution is needed to fill the tank. The

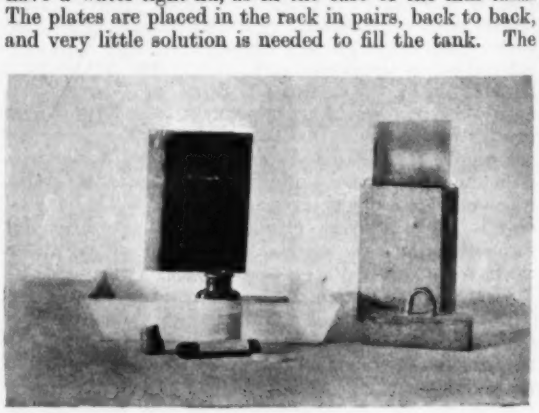


FIG. 2.

tank should be reversed several times during development, as in the case of films. The more active portion of the developer seems to be heavier; and if reversal does not take place, this heavier portion rests at the bottom, giving a negative of uneven density.

The complete apparatus for plate development is shown in Fig. 2. A negative is shown partly protruding from the reversible portion of the tank. In front of this is the lid with its light-trapped air vent, while the outer reservoir is shown behind the fixing dish; this latter, with two little bottles of tabloids, completes the whole of the necessary parts.

The advantage of most plate tanks is that fixing and washing may be carried on without even opening the tank. Most makes have a small filling plug at the top, and a tap at the base for emptying, thus allowing water to flow right through for washing. This also automatically cleanses the tank, leaving it ready for another time. The Watkins tank differs from other forms, inasmuch as it has the plates held horizontally, with the sensitive sides downwards—this, of course, does not necessitate any reversal of the tank, and there is no danger of unequal density.

Flat or cut films may be developed in a plate tank by using film frames, which can be bought for the purpose. They are hardly stiff enough to stand alone, and there is a danger of them touching each other, and so forming undeveloped patches on the film.

For developing cut films I made some zinc holders, or clips, which have proved most useful. Six pieces of zinc, each about ½ inch longer than the film, and somewhat less in width (for ¼ plate size, say, 5 inches by 2¾ inches zinc) were cut, and bent into horse-shoe shape. The bend should be lengthways of the zinc plate. The film is then taken by its edges between the finger and thumb and slipped into the clip, the sensitive side being inwards.

Six of these are stood upright in any ordinary tank, while the clip prevents the film from being damaged, and acts as a mechanical hand. It is not advisable to place the zincs in the fixing solution, as I found that the celluloid is apt to become stained. The films can easily be fixed in a dish in the ordinary way. This is a very useful device if you are using "Kodoid plates"—celluloid films mounted on cards—or films from the Premo film-pack.

Of course there is no necessity to use the powders sold for the various film and plate tanks. You may mix your own developer, and by this means vary the time of development. You may ask, "Is it not possible to make a very weak solution, and to develop for a long time?" This is quite possible; but, if the plate is in the solution for several hours, a veil of chemical fog covers the film, causing the film to be rather flat and wanting in contrast. (The word "film" is here used to indicate the sensitive surface.)

For those who care to make their own solutions, "Tabloid" Rytol, Rodinal, or Watkins time developer may be used. These must be made up according to the maker's cards, as the time of development varies with the brand of plate used.

If your space is limited, or a dark room is not available, tank development will be of the greatest aid in your pastime. To describe the virtues of the tank in the shortest possible manner, it "does the rest," and does it well.

NEXT MONTH.

1. A fully-illustrated article on Russian toys.

2. A highly-interesting paper on "The Typewriter in the School."

RELIGION, MORALS, AND MANNERS.

A COURSE OF BIBLE TEACHING FOR THE SCHOOL AND HOME.

BY J. EATON FEASEY, HEADMASTER OF THE RANMOOR SCHOOL, SHEFFIELD (UNIVERSITY DEMONSTRATION SCHOOL), A LECTURER IN EDUCATION IN THE SHEFFIELD UNIVERSITY.

III.

On Thinking too much of One's Self.

THERE is, in the Epistle to the Romans, one very pointed instruction to the members of the Church which we of to-day are much inclined to hurry away from. Yet it is introduced very solemnly, with words which suggest that the writer is speaking *ex cathedra*, with full apostolic authority. Here it is:—

"For I say, through the grace given unto me, to every man that is among you, not to think of himself more highly than he ought to think; but to think soberly" (Rom. xii. 3.)

Those who composed the summary at the head of the chapter evidently regarded this as one of the chief admonitions in it, for they summarise or paraphrase it in these words: "No man must think too well of himself."

Possibly we are inclined to feel that, proper and necessary as this injunction might have been to the citizens of imperial Rome, it is hardly applicable to us. It is clear that St. Paul thought there was a danger of people over-estimating themselves, and that he regarded this mistake as a very serious fault against which he must warn every Christian, as he says "through the grace given unto me."

And this is not by any means the only place in the Bible where this failing is referred to. Indeed, when one comes to examine the matter, it is surprising how very much the Bible has to say about it.

We take out several passages as examples:—

"Well; because of unbelief they were broken off, and thou standest by faith. *Be not highminded*, but fear" (Rom. xi. 20).

"A bishop, then, must be.....not a novice, lest being lifted up with pride he fall into the condemnation of the devil" (1 Tim. iii. 6).

"It is not good to eat much honey: so for men to search their own glory is not glory" (Prov. xxv. 27).

"These six things doth the Lord hate: yea, seven are an abomination unto him: A *proud look*, a lying tongue, and hands that shed innocent blood, an heart that deviseth wicked imaginations, feet that be swift in running to mischief, a false witness that speaketh lies, and he that soweth discord among brethren" (Prov. vi. 16-19).

"Pride goeth before destruction, and an haughty spirit before a fall" (Prov. xvi. 18).

These are but a very few of the passages in which reference is made to the common fault against which Paul warned the Romans so earnestly. Indeed, all the writers of the Bible seem to regard high-mindedness not merely as folly, not merely as irritating to those who see it, but as a serious fault before God. Yet this is probably one of the sins into which it is most easy to fall.

Especially is this the case where one is made much of, where, because of wealth or position or skill, one is subject to flattery; in these circumstances it is fatally easy to imagine one's self to be much more wise, or great, or good, or important than one really is.

A king, for example, must possess a strong character

to be able to resist the temptation to boastfulness, vainglory, and pride.

There are two notable cases recorded in the Bible, one in the Old Testament and one in the New, in which offensive pride was promptly and severely punished.

There is first the dramatic story of the great and boastful king, Nebuchadnezzar. Emperor of the mightiest state in the world—ruling in glorious Babylon, farfamed for its walls and palaces, hanging gardens and other delights—his heart became lifted up with a pride which was only to be removed from him by deep and bitter humiliation. It is a story that can only be realised by attempting to reconstitute the scene as one reads it.

"All this came upon the king Nebuchadnezzar. At the end of twelve months he walked in the palace of the kingdom of Babylon. The king spake, and said, Is not this great Babylon, that I have built for the house of the kingdom by the might of my power, and for the honour of my majesty? While the word was in the king's mouth, there fell a voice from heaven, saying, O king Nebuchadnezzar, to thee it is spoken; The kingdom is departed from thee. And they shall drive thee from men, and thy dwelling shall be with the beasts of the field: they shall make thee to eat grass as oxen, and seven times shall pass over thee, until thou know that the most High ruleth in the kingdom of men, and giveth it to whomsoever he will. The same hour was the thing fulfilled upon Nebuchadnezzar: and he was driven from men, and did eat grass as oxen, and his body was wet with the dew of heaven, till his hairs were grown like eagles' feathers and his nails like birds' claws. And at the end of the days I Nebuchadnezzar lifted up mine eyes unto heaven, and mine understanding returned unto me, and I blessed the most High, and I praised and honoured him that liveth for ever, whose dominion is an everlasting dominion, and his kingdom is from generation to generation: And all the inhabitants of the earth are reputed as nothing: and he doeth according to his will in the army of heaven, and among the inhabitants of the earth: and none can stay his hand, or say unto him, What doest thou? At the same time my reason returned unto me; and for the glory of my kingdom, mine honour and brightness returned unto me; and my counsellors and my lords sought unto me; and I was established in my kingdom, and excellent majesty was added unto me. Now I Nebuchadnezzar praise and extol and honour the King of heaven, all whose works are truth, and his ways judgment: and those that walk in pride he is able to abase" (Dan. iv. 28-37).

Notice the sharp contrast between verse 30 and verse 37. In the former the praise is of himself—"*I* have built," "*My* power," "*My* majesty;" in the latter it is the works and ways of the King of Heaven that are extolled.

The lesson of this event did not, however, prevent the grandson of Nebuchadnezzar from falling into the same error. When Daniel the prophet was interpreting the handwriting on the wall to King Belshazzar, he reminded the king of Nebuchadnezzar, and how, "when his heart was lifted up, and his mind hardened in pride, he was deposed from his kingly throne. And thou," continues the prophet, "his son, O Belshazzar, hast not humbled thine heart, though thou knewest all this, but hast lifted up thyself against the Lord of heaven" (Dan. v. 22).

Alas! to many of us it might truthfully be said, "Thou hast not humbled thine heart, though thou knewest all this."

The New Testament story is even more tragic.

A petty king has received the submission of a couple of cities which had displeased him. To mark his reconciliation, he decks himself out in all his glory, and, seated upon his throne, addresses the obsequious citizens. They, fawning upon him, declare that it is a god who speaks, and no mere mortal man. Being eaten up with pride, he accepts the fulsome flattery, instead of sternly rebuking it. Then, swift and sure, comes the stroke of the angel of God, to mark the anger of the Lord at this extravagance of pride.

"And Herod was highly displeased with them of Tyre and Sidon: but they came with one accord to him, and, having made Blastus the king's chamberlain their friend, desired peace; because their country was nourished by the king's country. And upon a set day Herod, arrayed in royal apparel, sat upon his throne, and made an oration unto them. And the people gave a shout, saying, It is the voice of a god, and not of a man. And immediately the angel of the Lord smote him, because he gave not God the glory: and he was eaten of worms, and gave up the ghost."

These passages are sufficient to convince us that of all sins this is, according to the Scriptures, one of the most hateful. Sir Thomas Browne does not exaggerate when he speaks of this vice as "a mortal enemy to charity, the first and father-sin, not only of one man, but of the devil, Pride: a vice whose name is comprehended in a monosyllable, but in its nature not circumscribed with a world." The prince of Tyrus fell into this sin and vaunted himself as a god, and this is the judgment pronounced by Ezekiel against him:—

"The word of the Lord came again unto me, saying, Son of man, say unto the prince of Tyrus, Thus saith the Lord God; Because thine heart is lifted up, and thou hast said, I am a god, I sit in the seat of God, in the midst of the seas; yet thou art a man, and not God, though thou set thine heart as the heart of God: Behold, thou art wiser than Daniel; there is no secret that they can hide from thee: With thy wisdom and with thy understanding thou hast gotten thee riches, and hast gotten gold and silver into thy treasures: By thy great wisdom and by thy traffick hast thou increased thy riches, and thine heart is lifted up because of thy riches: Therefore thus saith the Lord God; Because thou hast set thine heart as the heart of God; Behold, therefore I will bring strangers upon thee, the terrible of the nations: and they shall draw their swords against the beauty of thy wisdom, and they shall defile thy brightness. They shall bring thee down to the pit, and thou shalt die the deaths of them that are slain in the midst of the seas. Wilt thou yet say before him that slayeth thee, I am God? but thou shalt be a man, and no God, in the hand of him that slayeth thee. Thou shalt die the deaths of the uncircumcised by the hand of strangers: for I have spoken it, saith the Lord God" (Ezek. xxviii. 1-10).

We must not, however, suppose that it is only princes and people in great places who are liable to this fault, or that it is only objectionable when carried to the excessive point reached by those of whom we have read. Every one is liable to be tempted to think of himself "more highly than he ought to think," particularly the rich, the clever, the pretty, the attractive. And, quite apart from the sinfulness of pride, vainglory is always objectionable, and usually makes one exceedingly ridiculous. It leads one to be unjust to others by underestimating them. Far and away better is the modest spirit which thinks little of self and self's doings, and is ready to yield first place to another. Nothing was more admired in connection with the suppression of the mutiny in India than the conduct of Outram in resigning to Havelock, his inferior officer, the honour of leading the attack on Lucknow. And who has not admired the brave, gentle, modest spirit of Henry Lawrence, whose last words before dying were, "Let there be no fuss about me; let me be buried *with the men!*"

And now let us turn to the greatest of Teachers, whose chief characteristic is that, though recognising Himself as Master and Lord, He was still the very pattern of modesty and humility:—

"But all their works they do for to be seen of men: they make broad their phylacteries, and enlarge the borders of their garments, and love the uppermost rooms at feasts, and the chief

seats in the synagogues, and greetings in the markets, and to be called of men, Rabbi, Rabbi. But be not ye called Rabbi: for one is your Master, even Christ; and all ye are brethren. And call no man your father upon the earth: for one is your Father, which is in heaven. Neither be ye called masters: for one is your Master, even Christ. But he that is greatest among you shall be your servant. And whosoever shall exalt himself shall be abased; and he that shall humble himself shall be exalted" (Matt. xxiii. 5-12).

"And he put forth a parable to those which were bidden, when he marked how they chose out the chief rooms; saying unto them, When thou art bidden of any man to a wedding, sit not down in the highest room; lest a more honourable man than thou be bidden of him; and he that bade thee and him come and say to thee, Give this man place; and thou begin with shame to take the lowest room. But when thou art bidden, go and sit down in the lowest room; that when he that bade thee cometh, he may say unto thee, Friend, go up higher: then shalt thou have worship in the presence of them that sit at meat with thee. For whosoever exalteth himself shall be abased; and he that humbleth himself shall be exalted" (Luke xiv. 7-11).

The pride and self-glorification of the Pharisees were intensely repugnant to Jesus. "Nothing," says Dean Farrar, "more clearly shows the essential hollowness of Pharisaic religion than its intense pride and self-exaltation." Let one anecdote suffice. The King Jannæus had on one occasion invited several Persian satraps, and among the guests asked to meet them was the Rabbi Simon Ben Shetach. The latter, on entering, seated himself at table between the king and queen. Being asked his reason for such presumptuous intrusion, he replied that it was written in the Book of Ben Sirach, "Exalt wisdom, and she shall exalt thee, and shall make thee sit among princes."

Jesus tells us that, just as in earthly society the self-conceited person will be compelled to give place to modest merit, so in the eternal world "he that exalteth himself shall be abased." There is no place in God's kingdom for pride.

"Humble we must be if to heaven we go;
High is the roof there, but the gate is low."

PRACTICAL NOTES ON SCHOOL GARDENING FOR JANUARY.

BY BRUCE COOK, F.R.H.S., CHINGFORD.

SPECIMEN SCHEME FOR TEACHING SCHOOL GARDENING IN

THE (insert name of School) *SCHOOL.*

School Official Number.....

.....Name of Teacher.

DAY and time when the gardening lesson is given, as inserted in the school time-table.

Dimension of garden ground, and *plan of same*, showing the *general* (*or demonstration*) *plots*, proposed *fruit plot*, and the *plots* to be worked by the lads. These should all be drawn to scale.

The *fruit plot* will be planted with at least—

4 apple trees, early and late varieties.
4 pear trees, 2 plum trees.
8 gooseberry bushes.
4 black currant trees, 2 red currant trees.
1 row of raspberry canes.
1 row of strawberry runners.

Lessons will be given in (*a*) summer pruning; (*b*) winter pruning; (*c*) root pruning; (*d*) treatment of the various pests found; (*e*) grease banding; (*f*) budding and grafting.

The demonstration plot will be used for collective teaching and work including rose budding on briers, raising of vegetable plants prior to planting them out into the plots belonging to the lads. This plot will contain a garden frame, or boxes with glass coverings, in which marrow plants will be raised, and also stocks, asters, etc., to be transplanted when ready into the boys' plots. Also two or three roots of rhubarb, early and late varieties; autumn onions, winter lettuce, and cabbages for planting out in spring. A herb bed will be formed, including herbs in general use, such as mint, thyme, sage, etc.

A border of perennial plants will be formed in the demonstration plot, for the purpose of teaching propagation by division, etc. Also biennials—say, Canterbury bells, sweet williams, and wallflowers. Two rows of celery, one red and the other white, will be grown in separate trenches.

Winter greens—such as kale, brussels sprouts, collards, etc.—will be grown in this plot, in order to keep the boys' plots free from crops from late autumn till spring; so that the lads may have plenty of practical work in manuring, digging, and ridging their plots ready for spring sowing and planting.

The boys' plots.—One portion of each will be used for the cultivation of vegetables, such as early and late potatoes, broad beans, kidney beans, scarlet runners, turnips, beetroot, carrots, peas (early and late), onions, parsnips, etc.

The position of these crops will be altered yearly, in order to teach "rotation of crops."

In the other portion of each plot will be grown simple hardy annuals—that is, Shirley poppies, mignonette, sweet peas, candytuft, etc.

Practical work will be given in mulching, seed-sowing, hoeing, thinning, planting, transplanting, and gathering crops. Also weeding, and disposal of garden refuse. Also the uses of the various tools as occasion arises.

A PRACTICAL LESSON IN GARDEN DRAINING.

Theoretical instruction will be given on the various pests met with, and methods of destroying same; rotation and succession of crops; influence of slope of land and position, effects of climate and weather on soils and crops; economy of space when planting and cropping; manures and their values; the food and structure (generally) of various plants; also the simple composition of different kinds of soils and manures.

The following subjects will be correlated as occasion arises: drawing from garden objects and flowers, Nature study, arithmetic, and mensuration.

Lessons on the benefits and use of gardening will be given, and also the care and use of tools.

It is suggested that the Education Authority provides all seeds, tools, and equipment, such as cold-frame fruit trees, etc., etc. A dissecting microscope will, if possible, be provided for examining various pests, etc.

Rough notebooks will be kept by each lad, in which he will record briefly, and in his own language, shortly after each lesson, an epitome of the work done, seeds sown, depth, etc., state of weather, etc.

Each boy's notebook will contain a rough plan of his plot, and the crops grown yearly thereon. Also any failures of crops, and the probable reason for the cause of such failures. Also any "finds" in the shape of butterflies, caterpillars, chrysalis or pupæ, frogs. Any other pests met with, and their treatment.

The following list of tools will be provided: 1 wheelbarrow; 3 watering-cans, 2¼ gallon size; 1 bill hook; 3 lines and pins; 7 Dutch hoes; 7 dibbers; 7 spades; 7 forks; 7 drawhoes; 7 rakes; 7 trowels; 1 broom; 100 9-inch labels; 18 pegs, 1½ feet by 2 inches by 1 inch.

The following additional tools will probably be required later on: 1 Abol syringe; 1 pair of secateurs; 3 pruning knives; 1 budding-knife; 1 sieve, ¼-inch mesh; 1 cold frame; 1 rain-gauge and funnel; 1 maximum and minimum thermometer, and 1 magnet; 1 spirit level; ½ lb. of bast for tying; 7 measuring rods, 10 feet long, made out of 1 inch by 1 inch wood, marked off in feet and inches (the boys might make these rods).

Calendar of Garden Work in Brief Outline.

January.—Plan the cropping of garden. Explain rotation of crops. Dig and manure, leaving surface rough. Prune fruit trees and bushes if weather is mild. Prepare onion beds when ground is dry, applying plenty of soot to prevent onion maggots. Plant fruit trees, bushes, roses, if weather is open, from January to the end of March.

February.—Plant rhubarb, artichokes, shallots, autumn-sown onions, and fruit trees. Divide herbs, and replant same. Prune gooseberries, black and red currants, and burn cuttings. Spray fruit trees and bushes with an insecticide. Dig and manure any vacant spots. If birds attack bushes, apply soot or slacked lime, when branches are wet, or thread black cotton across tops of bushes. Manure and fork over the ground round fruit trees, and supply lime to kill insect pests.

March.—Finish digging and manuring. Plant early potatoes. Sow brussels sprouts, savoy, kale, winter cauliflower, cabbage, early carrots, turnips, onions, peas, lettuce, herbs, and hardy annuals. Prune hybrid perpetual roses before end of month. Finish grafting of fruit trees.

April.—Make up beds for marrows and ridge cucumber. Sow turnip, beetroot, parsley, main crop carrots. Protect early potatoes, and plant main crop potatoes. Sow seeds of hardy and half-hardy annuals outdoors, in small drills for transplanting. Scatter soot on onion beds, to prevent attack of onion fly. Prune tea roses.

May.—Plant out ridge cucumber marrows, tomatoes, and dahlias, and protect them from frost until the 1st of June. Sow dwarf beans and scarlet runners, beet, cauliflower, turnip, and peas for late crops. Thin onions, carrots, and parsnips. Stake peas and scarlet runners as they require it. Pinch tops off broad beans. Earth up potatoes. Hoe between crops. Put straw between strawberries.

June.—If required, sow peas for late crops. Also turnips, radish, and spinach. Plant celery and marrows, and ridge cucumbers. Prepare ground for winter crops. Earth up potatoes as required.

July.—Plant, if possible, broccoli, kale, savoys, and collards for winter cutting. Apply soot or manure water to onions. Summer prune fruit trees. Towards end of month sow seeds of cabbage (including red) for planting next spring. Sow also brompton stocks, wallflowers, sweet williams, pansies, carnations, and other seeds, so that seedlings will be ready for planting out in spring or late autumn. Sow radishes and lettuce. Hoe soil, and keep surface loose. Gather and dry herbs this month or next. Bud fruit trees and roses. Net gooseberries, strawberries, and currants.

August.—Sow giant rocca or tripoli to stand winter. These are to be planted out in February. Also sow hardy lettuce and spinach to stand winter. Earth up celery as required. Layer strawberries, and make fresh beds as early as possible in rich soil. Bend tops of onions. Look out for wasps' nests and destroy same. Cut hedges.

September.—Clear ground of early potatoes, and remove ripe crops. Finish planting winter greens. Plant spring cabbage, strawberries. Pull onions. Dig potatoes. Remove all dead and decaying leaves, and hoe thoroughly to keep down weeds. Plant bulbs of all kinds, both in pots and in the open garden.

October.—Take up potatoes if ripe. Plant some coleworts, and earth up celery, and protect tops of same. Finish planting spring cabbage and strawberries. Cut down old fruiting canes of raspberries, and *tie* in the young ones for next year's fruiting. Put grease bands round fruit trees. Hoe, rake, and weed winter crops. Take up potatoes, artichokes, beet, and carrots. Remove all dead and decaying leaves. Parsnips may be left in ground until frosty weather has flavoured them.

November.—Plant any shrubs or fruit trees or bushes. Prune fruit trees. Remove runners from strawberries, lightly fork the soil, and well dress with farmyard manure, which must not be dug in. Hoe between rows of lettuce cabbage, etc. Manure, dig, or ridge vacant ground. Take up dahlia roots, and store in cool, dry place, free from frost, and see labels are securely tied to named varieties.

December.—Clean up ground and paths generally. Dig, ridge, and manure plots. Clean out ditches. Mulch all newly-planted fruit trees, and shrubs. Protect celery with sacks, and choice roses with straw or bracken. Attend to walks. Prepare stakes for plants.

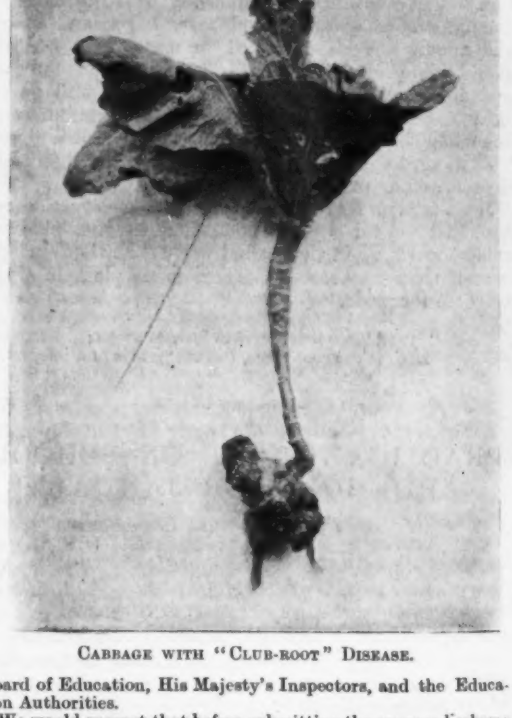
Hints and Suggestions for the Teacher.

Have all tools, where possible, branded with the county mark. See that tools are numbered to correspond with the number of the plot, and insist on each pair of boys being responsible for the cleaning and storing of their own tools.

A dissecting microscope will be found most useful for examining garden pests, etc., and also seed growths. It can also be used in various ways in ordinary school work and Nature study lessons. We were recommended to use one made and sold by Watson and Son, the well-known microscope makers of High Holborn, and we have found it most suitable for school use. It costs, we believe, about a couple of guineas.

The list of tools recommended has been found ample for a class of fourteen boys working in pairs, and sharing one plot between them. It is only waste of money to provide an entire set of working tools for each lad.

The scheme printed above is published in reply to many inquiries received by the Editor, asking for a specimen scheme. It is one (in a somewhat extended form) that has been tried and found to meet all the requirements of the Board of Education, His Majesty's Inspectors, and the Education Authorities.



Cabbage with "Club-root" Disease.

We would suggest that before submitting the proposed scheme the teacher get two of the senior children to make two copies of the same.

WORK FOR JANUARY.

Flower Culture.

Cuttings of violas, pentstemons, calceolarias, etc., in cold greenhouses, cold frames, etc., should have sheets of brown paper or newspaper spread lightly over them in severe, frosty weather. It is really wonderful how a slight protection like this guards them from the frost. Of course, cover the frames with mats if you possess them.

Roses may be planted in open, fine weather; but we recommend for preference planting in prepared soil early in March. If any tea roses are grown, it would be wise to protect them from very severe frosts by covering the lower branches with about 4 inches of sifted ashes.

Bulbs may be planted outside in fine weather. Plant at least

4 inches below the surface of the soil, and mulch with an inch of cocoa-nut fibre.

Fruit Culture.

During fine weather, when there is no frost about, you can transplant fruit trees and bushes, top dress with manure, root prune. Also plant any received from the nurseryman.

Pruning can be carried out on fine days, but never when the trees are frozen.

All fruit bushes and trees may have soot and lime scattered over them any time this month or next when the branches are damp. This is best done on a still, calm day.

Vegetable Culture.

Seed potatoes should be spread out in shallow boxes, with the "eye end" uppermost, in a frost-proof shed, exposed, if possible, to the light. This causes the eyes to produce nice, short, healthy strong shoots. Seed potatoes sprouted in this way produce potatoes ready for digging at least two weeks before those treated in the ordinary way.

Draining the Land.

When selecting the site for a permanent garden, school or otherwise, it is a good plan to find out whether it requires draining, for good crops can never be grown on ground that is waterlogged.

An old Scottish nurseryman that I knew, and from whom I picked up many valuable practical tips in gardening, always, prior to renting a fresh field, dug out several holes, three feet deep, in different parts of the field, in the late autumn or early winter. If he found that water remained stationary for any length of time within a foot of the surface in these holes, he said it invariably showed that the land required draining. Of course, he also found out the depth of soil and the kind of subsoil by digging these holes.

Examining Club-rooted Stems of Cabbages.

Another easy way of telling whether the ground wants draining is by examining the herbage. If tufted grass, sedges, and rushes are abundant, it is a certain sign that the land is too wet.

We do not propose describing field draining, which is often carried out to a depth of 5 or 6 feet, because this is beyond the strength of the boys.

A lesson on the importance of field drainage might with advantage be given; and, where any such operations are being carried out in the district, the lads should be taken to the spot, and the matter explained to them. Where the garden does require draining, then at the commencement (although it takes up considerable time) the draining should be carried out either by a special man appointed by the Education Committee, or in some instances by the teacher and the boys themselves, especially if only one part of the garden is water-logged, as is often the case.

We found one portion of our garden ground water-logged, and as there was a fairly good fall towards a ditch, it was decided to try to drain this part ourselves. To begin with, the drain pipes need not, in a garden, be put in deeper than 3 feet. In fact, from 2½ feet to 3 feet is quite deep enough, especially if the ground has been already trenched, and the soil is a clayey one.

A spirit-level was fastened to a piece of wood, 10 feet in length, by means of two staples. The spirit-level and air-bubble were then explained to the lads, who, by the aid of the same, found out which way the ground sloped. The ground was opened along the side of the path to the depth of 2 feet, gradually deepening to 2 feet 6 inches near the ditch, which had already been dug out and cleaned by the lads. Some unglazed drain pipes, 2 inches in diameter, were obtained, after the lads had calculated how many would be required. These were carefully placed at the bottom of the trench, and the spirit-level laid on top, to see that there was a fall toward the ditch. A few old clinkers, brickbats, etc., were placed on top of the pipes for some distance; and some old hedge clippings, prunings, etc., were carefully trodden down on top of the pipes for the remainder of the trench. The soil was then replaced in the trench. Although it is some time ago since this "rough-and-ready" drain was put in it has acted grandly, and this part of the garden, which was nearly always water-logged and the path impassable in winter, is now free from standing water. Instead of taking the end pipe direct into the ditch, we sunk a very large old tin bath (holding nearly 200 gallons) into the ground near the ditch. The drain pipes carried the water into this receptacle, which was so arranged that when the bath was full the superabundance of water drained into the ditch. This provided us with a good supply of water for gardening purposes, even during dry weather.

The lads (as will be seen by the photo) were deeply interested in this practical lesson in draining, and one, we heard later, tried his hand at a similar piece of work in his father's garden.

A Practical Lesson for a Stormy Afternoon.

Obtain some cabbages with the roots badly attacked by the "club root," or "finger-and-toe," or Aubury disease, as it is sometimes called (*vide* photograph of same). One reason for writing on this disease is that several correspondents have written asking how to treat land infested with this fungus. Arrange the class so that they can easily see and hear (see photo). Having had the infected roots well washed and placed out on a large sheet of brown or drawing paper, draw attention to the peculiar disagreeable smell from some in an advanced stage of decomposition Let the lads make sections of same with a sharp "budding" knife or razor, finding different parts in various stages of the attack by the fungus. Tell them that it specially attacks cabbages, cauliflowers, and turnip crops, and that the disease is set up by spores, which though absent in many soils are present (sometimes in a dormant state) in others; and that while it will not attack some crops, as soon as the above are planted they become infected by the fungus. Root action is stopped, and therefore the cabbage cannot possibly grow properly. "Club root" is common on land deficient in lime.

Cure.—Apply a dressing of gas lime at the rate of about a half ton the quarter acre (or in proportion, say, 1½ lbs. to the square yard). Spread the gas lime over the vacant ground in the winter, and let it lie exposed to the frost, etc., for four or five weeks, and then dig it in. Do not crop the land for at least two months, otherwise the gas lime will injure the young crops. Burn all roots showing signs of the disease, and on no account dig them in or throw them on the rubbish heap.

Do not grow crops of the "brassica" family for at least three years.

Another plan is to make a thick, strong puddle of clay and soot, and dip the roots of the cabbage family into this before planting.

Answers to Correspondents are unavoidably held over until next month.

A SEASONABLE HINT.

Messrs. Burroughs, Wellcome, and Co. have sent us a small pamphlet entitled *Lantern Slides and How to Make Them*, and inform us that it can be obtained gratis at any of their depôts. The little pamphlet is attractively produced and well illustrated. It is hoped that even those readers who have already had some experience in this fascinating art will find some of the hints useful, and that those who are engaging in lantern slide-making for the first time will appreciate instructions which do not assume on their part any special preliminary knowledge of the subject.

French Prize Competition.

1. All French translations **must be received not later than January 7, 1911**, and addressed to:—PRIZE EDITOR, Office of *The Practical Teacher*, 35 and 36 Paternoster Row, London, E.C.
2. Competitors should cut out and send the *coupon* which appears on the Back Wrapper page of the current number. One coupon must be sent for each entry.
3. Competitors should write pseudonym only on MS. Prize-winner will be asked to send name and address for publication.
4. No competitor may take the prize offered more than once in three months.

A Prize of Half a Guinea is offered for the best rendering into English of the following extract:—

Qui croirait que ma première velléité d'opposition au gouvernement consulaire fut l'emprunt fait à Rome et à la Grèce des noms donnés d'abord aux nouvelles fonctions, et plus tard aux établissements d'instruction publique! Consuls, tribuns, préfets, prytanées, lycées; tous ces mots me semblaient jurer avec le nouveau monde qu'avait enfanté 89, qui nous avait légué bien assez de mots de pareille origine; c'était de l'enfantillage de ma part, sans doute, mais j'ai toujours détesté cette routinière imitation des anciens. Chez nous, voyez Hérault de Séchelles ne pouvant se mettre à travailler à notre constitution, s'il ne parvient à se procurer avant toute chose, les lois de Minos. Du mélange que nous avons fait de l'ancien et du moderne, du paganisme et du Christianisme, est née une civilisation de pièces et de morceaux, habit d'Arlequin qui, heureusement, commence à tomber en loques. Ma colère, à ce sujet, faisait rire alors, et fera rire peut-être aujourd'hui. Cela ne m'a pas empêché, malgré mon amour pour les Grecs, de prendre à guignon les grands hommes de Plutarque et Plutarque lui-même, ce Grec qui n'ose apprécier ni la grandeur politique de Démosthène, ni le génie d'Aristophane. Etudions l'antiquité, respectons la tradition, mais ne leur empruntons que ce dont nous ne pouvons nous passer. Mon admiration pour Bonaparte ne m'a pas empêché de le traiter souvent d'homme de collège. Paoli l'avait bien deviné; c'était sous beaucoup de rapports un héros de Plutarque; aussi restera-t-il, je l'espère le dernier et peut-être le plus grand des hommes de l'ancien monde; qu'il aimait à refaire, à sa manière toutefois. Hélas! rien ne porte malheur comme de lutter contre un monde nouveau! Napoléon a succombé à la tâche. En 1815, justifiant le mot de Paoli, il écrivait au régent d'Angleterre, qu'il venait, comme Thémistocle, s'asseoir au foyer britannique. Le peuple anglais et son prince ont été bien sensibles à ce souvenir de Plutarque.

From "Ma Biographie," by P. J. DE BÉRANGER.

RESULT OF THE NOVEMBER COMPETITION.

The prize is awarded to "Julie la Bretonne," whose name and address are:—Miss Brazier, West View, Constable Road, Ipswich.

First Class.—Paladin, La Corrèze, Paul, Mergy, Valjean, Miranda, Etudiante, Celiswelia, Dot, E. Physche, Shax, Sapphire, Leicester (A), Smadae, Classy, Kuno, Irish Colleen, Hialmar, Jella, Rusticus, L'espoir, Michael, Pougnes, Sirius, E. C. M., Pollux, Physis, Argentonnais, Choc, A Youngster, Hélène, Courlien, Ecila, Gaud, Elba, Mavis, F. B., Westminsterian, Sunbeam, Zizanie, Scho, Leicester (B), Clapham, Innocence, Queen Mab, Southchurch.

Second Class.—Petruchio, Portia, Essex, Cisarafané, Vivienne, ——, Toto, N. F. U., Three Blind Mice, Excelsior, Vectis, Thrums, Rinque, Orlando, Edouard, Aconia, Sweet Butter, Mifanwy, Don, Acer, Blackhills, Maire, May B., The Bretonne, Shaughran.

REPORT.

A fair proportion of very good translations was received. The piece set, although in itself a piece of magnificent prose and a perfect character-portrait from that of one of the greatest Frenchmen of last century, contained some traps for the unwary. *Un romantique protestant contre le romantisme* was bound to catch some. "A fictitious Protestant contrary to Romanism," "a Romanist protesting against Roman Catholicism," are two samples of the errors made in translating this phrase. *Fait* is not "grown up" but rather "formed." It means that a definite bent had been given to his moral and intellectual development. *Sens*, too, is not "sense" but "direction." *Prêchant en politique le terre-à-terre* means "advocating no lofty views in politics." This was rendered "advocating the policy of back to the land," and "advocating the land for the landowner," whatever the last rendering may mean. *Bourgeois* is always a difficult word to translate. "Matter of fact," "commonplace," and "Philistine" are approaches towards its meaning. *Eût* in *l'application eût pu varier* troubled some, but it is simply an instance of the use in elevated style of the imperfect subjunctive for the conditional tense.

PRIZE TRANSLATION.

At bottom, when I study myself, I have really changed very little. Fate had in a certain fashion bound me firmly from childhood to the special work which I was to accomplish. I was formed when I reached Paris; before I left Brittany my life was written beforehand. Willy nilly, and in spite of all my conscientious efforts to the contrary, I was predestined to be what I am, a romanticist protesting against romanticism; a utopian preaching as a politician the commonplace; an idealist giving himself in vain much trouble to appear matter-of-fact: a tissue of contradictions. One half of me was destined to be occupied in destroying the other, like that fabulous animal of Ctesias, which ate its own paws without suspecting it. It is as that great observer, Challemal-Lacour, has said excellently, "He thinks like a man, he feels like a woman, he acts like a child." I do not complain of it, since this moral constitution has procured for me the keenest intellectual enjoyments that one can taste. My race, my family, the town of my birth, the very special environment in which I developed, forbidding me commonplace points of view, and making me absolutely unfitted for anything but perfectly disinterested intellectual work, had made of me an idealist, closed to all else. The application may have taken different shapes; the underlying principle has been always the same. The true mark of a vocation is the impossibility of being false to it—of succeeding in anything but that for which one was created. The man who has a vocation willingly sacrifices everything to his chief work. As often happens, external circumstances might have derailed my life and prevented me from following my natural path; but my absolute incapacity to succeed in what was not my destiny, would have been the protest of violated duty. In any career which had for its object the search for any interest whatever, I should have been futile, awkward, beneath mediocrity. JULIE LA BRETONNE.

Joyce and the Rambler. By Amy Le Feuvre, author of "Odd," "A Bit of Rough Road," "Robin's Heritage," etc. (*London, Hodder and Stoughton.*)

This is a bright and interesting story of domestic life, of a type specially suited for girls' libraries. The tone is wholesome, and the pronounced religious spirit of the work is not allowed to blur the delineation of character and incident. We can cordially recommend it to those in search of safe and helpful books for young people.

Nervousness in School Children.

BY H. EMLYN JONES, M.R.C.S. (ENG.), L.R.C.P. (LOND.).

THE management of the "nervous" child is one of the greatest problems of to-day, and presents itself in varying aspects to the teacher and parent. In secondary schools more especially the number of nervous children is increasing rapidly, and the remarks often made by parents concerning such children evidently indicates that even nowadays they frequently consider this state as a desirable distinction in their children.

The "nervous" or "neurotic" child may be defined as "one in whom the emotions are easily excited, strongly felt, and not readily restrained"—a temperament quite compatible with the healthiest and happiest of lives; but by its abuse, mismanagement, and faulty training will result in the production of a child with enfeeblement of will power, loss of self-control, and an undue appreciation of real or imaginary ailments—in other words, the "nervous" child is simply a potential "hysterical" girl or "neurasthenic" man.

Nervous children are the product of neurotic parents, including the insane, the alcoholic, the hypochondriacal, and those who suffer from such diseases as asthma, epilepsy, and rheumatism. Rheumatism is particularly important, just as much so in the parent as in the child. During the early childhood of those with the neurotic taint attacks of St. Vitus' Dance, frequently combined with growing pains, are often developed. These latter must be regarded as true rheumatism, and the former as a manifestation of rheumatism affecting the brain. It is probably obvious to every teacher that all children suffering from this affection are of the nervous temperament; and it will therefore be seen how important it is that the teacher should have the knowledge wherewith to recognise the early symptoms of the trouble—(for example, the involuntary twitchings of the fingers, especially brought out when the child's hand is at rest and its attention diverted), and to present such children at the earliest possible opportunity to the school medical officer.

Being the product of a neurotic parent, the nervous child is usually artificially fed, the mother stating she is unable to nurse the child. Though heredity plays such an important part in the causation of this nervous state, faulty training and bad example are two other factors, which, if they do not actually produce it, play such contributory parts that they cannot be disregarded. Parents and teachers who allow their children to acquire bad habits of thought, who do not cultivate habits of self-control, and who do not carefully watch over the physical as well as the mental development of the children under their care, are perhaps slowly, but nevertheless surely, laying up for themselves and such children a stormy and troublesome future.

The nervous temperament may be evident at a very early age. Even in the first few months of life the excessive excitability of the nervous system may show itself in a tendency to start at the slightest noise; in fretfulness and restlessness, with a tendency to "screaming fits;" and above all, the infant who is commonly termed "a bad sleeper," sleeping little and waking at the first possible cause—provided there is no obvious cause for the sleeplessness, such as rickets, errors of diet, or indigestion—will almost invariably turn out to be a "nervous" child.

Perhaps the most common feature of this neurotic state is an undue degree of *excitability*, and a frequent complaint one hears from teachers with reference to this type of child is that they become unduly excited in their school games. Such children will become wildly excited whilst playing a simple game of rounders, or at a children's party, and subsequently are pale and exhausted with disturbed and restless sleep.

Akin to this abnormal excitability is their proneness to *fainting attacks*. These children will show a tendency to faint when subjected to anything at all unusual, such as standing in a class a few minutes longer than normally, or at drill, or in church. Indeed, the vast majority of children referred to me for an opinion, with the suggestion that they are suffering from a "weak heart" owing to frequent fainting fits, are simply instances of this nervous state.

Such children require very careful supervision and training, but to "cut" them off exercises and games, which might be necessary were the heart really affected, is in this class as wrong as it is useless.

Limitation both in exercises and study will have a far more likely beneficial effect, for it is this type which suffers much more rapidly from physical and mental fatigue than the average healthy scholar.

Another important feature present in nervous children is *impressionability*. These children are liable to be abnormally affected by a pathetic story, and possibly burst into tears. They suffer from headaches, and are addicted to sleep-walking, often combined with *night terrors*, with or without delusions.

On listening to some of these delusions of night terrors, it is easy to observe that they frequently originate in harmful literature. It is not an uncommon occurrence to observe a young child a short time previous to retiring to bed reading some horrible tale, or children under six looking at pictures of fearful ogres waiting to devour children. Under such circumstances it is not to be wondered at that these children are afraid of the dark, have bad dreams, or are terrified.

It must be remembered that all children are extremely imaginative, and nervous children to a greater extent than others, and it is difficult for us to imagine the realism of early childhood. The harm done to a nervous child by filling its mind with the horrible and unlovely is too terrible to think of. Children should only be taught the lovely things of life, the object being to produce in the child all that is beautiful and wise.

The fairy tales, as at present used in our infant schools, are excellent for young children, provided only those with a tendency for good are used. But, as Dr. Still has pointed out, it is not only bad books and pictures that are harmful. When I am informed that such and such a child of ten to twelve shows a disinclination for games and recreation, but devours the works of Browning or Milton, I always expect—and generally my expectations are realised—to find that child the subject of various twitching movements, indicative of habit spasm or even early St. Vitus' Dance.

Later on these children frequently become tooth-grinders, nail-biters, or stammerers; they have variable appetites, and headaches which increase in frequency as well as in intensity. They are usually quick pupils,

but fidgety and forgetful, gregarious in habits, and often fond of both work and play. At the least trivial cause they develop a rapidity of pulse and heart. The type can often be recognised at a glance. There is a preponderance of forehead, combined with a poor and flabby muscular development; and above all, a lack of anxious care, of resignation or self-importance, which readily distinguishes this type from the normal healthy school child.

As I have previously stated, these nervous children are intellectually quick and bright, sometimes clever; and often, unfortunately, they have a touch of "genius." Parents never forget this, and they never allow the child to forget it. Friends are told of the scholar's brilliant school career, and how he is always at the top of his form, and later on, how he is to win a scholarship. The boy hears this, and soon acquires an undue sense of his own importance.

This constant harping on the boy's attainments is one of the commonest causes of over-pressure of school work and subsequent breakdown. This spirit of competition not only fosters all that is egotistical in the boy, but it keeps him constantly in a condition of nervous strain and high tension. As a result the nervous child begins to flag, and his work falls off slightly in value; he looks pale, and develops twitchings of the face or body, and before long the inevitable breakdown occurs. The boy says he feels "rotten;" his teachers regard him as "run down." A few days' rest from school quickly restores him, and this process is repeated two or three times a term.

Other forms of nervous breakdown in neurotic children are *periodic attacks of sick headache* or *feverish attacks, accompanied by slight sore throat or vomiting*. These attacks are often described as "chills on the liver," and give rise to great alarm to the parents, who immediately entertain thoughts of consumption.

One curious phenomenon usually observed in these children is the way they hold the hand out. Ask such a child to quickly hold out both hands straight in front of him, and the result is what Dr. Warner has described as *the posture of the nervous hand*. The fingers are usually turned more or less upwards, producing a concave curve on the posterior surface of the hand, with the thumb bent and turned inwards towards the palm.

Possibly many of these children will stand the strain of their school career, and even of their college days, if such they have, only to break down later in the prime of life, when the man or woman has to meet the full stress of hard work and competition. It is then that the nervous breakdown follows, necessitating a diminished output of energy, a rest cure, or a permanent retirement altogether from the struggle. Occasionally this nervous or over-worked child meets with success in after life, but the cost of such success is generally a life of misery from chronic dyspepsia, melancholia, or hysteria.

Let me next suggest the line of treatment I consider should be adopted in these children. First of all, efforts must be made in infancy to moderate or control any undue outbursts of excitement, whether expressive of temper or childish pleasure. Extremes of emotion are harmful, hence wildly-exciting games must be forbidden, and frequently all games must for a time at any rate be strictly controlled. There should be special training in tidiness, regularity of habits, and concentration of thought. As these children are particularly liable to be exactly the opposite of this, steady perseverance may ultimately promote that self-control which should always be the chief aim in the treatment. Lack of sleep, if not the actual cause of the neurotic state in children, undoubtedly plays no small part in its promotion and progress. Ten or eleven hours in bed is not too liberal an allowance for a child of twelve or thirteen, and all children under fifteen should be in bed by 9 p.m. whether evening preparation has been completed or not. The old adage, "Every hour in bed before twelve is worth two hours after twelve," is doubly true in this class of children.

Regularity of meals should be insisted upon, and every possible effort must be made to make the child eat enough, although there may be but little inclination to do so. A common symptom of the nervous temperament is this disinclination for food in the morning, and no meal of whatever nature overnight in any way compensates for lack of breakfast. Alcohol in any form should be absolutely forbidden such children, for it is these, with their lack of self-control, that so frequently develop into habitual alcoholics later in life. In fact, the fewer drugs these children take the better.

I have said that these children are peculiarly imaginative, hence accuracy of statement in every matter must be insisted upon both at school and at home. Let them speak the plain truth, so that they can unconsciously use their own judgment, and appreciate truth when they hear or read it. When these nervous children are really ill, parents and teachers should show as little anxiety as possible, especially before the patient, for with them slight ailments are exaggerated, and strange symptoms imagined.

With regard to over-pressure of school work, let me at once say that all spirit of competition, which unfortunately is far too common both in our schools and homes, must be abolished in connection with the neurotic type of child.

They should not be encouraged to make the extra effort involved in studying for a prize or scholarship, but should be trained with the idea that regular and steady application to work, together with good behaviour, regardless of place in form or number of marks, is infinitely better in the long run than all the prizes.

These children should not be "cut off" their school games, provided of course undue excitement is not produced, for they often learn by these games that self-control and self-reliance which they so greatly need. In their school work they should be allowed to specialise, for in the nervous child uncongenial work, even if not excessive in quantity, quickly leads to mental fatigue and brain fag.

Though I am of the opinion that corporal punishment is often provocative of great good in the normal child, it must be clearly pointed out that such punishment inflicted on the neurotic class, with their highly-strung nervous systems, is not only wrong, but criminal. Such punishment frequently determines an attack of St. Vitus' dance or some hysterical outburst, which passes on to a complete nervous breakdown.

The sense of shame affects these children to a far greater degree than normal children, and certainly more than the actual pain of the corporal punishment, and I consider they are better dealt with by a system of rewards. Finally, it must be clearly understood that I have been dealing entirely with the so-called "highly-strung" children, who I think require special treatment and training just as much as the mentally or physically defective. Should these methods be adopted in the training of normal children, nothing short of failure will follow.

FAR AND NEAR.

INTERESTING ITEMS DRAWN FROM VARIOUS SOURCES.

THE Editor sends me the following letter, as most suitable for this far-reaching column, and commends its request to the good feeling of all our readers :—

7th Nov. 1910.

"My dear Editor;

"I am a japanise jr. and a Subscriber of practical Teacher. Ever thanks for your Brilliant magazine because I have recieved much benefit from it.

"Now; I hope you will permit me to write your Readers as follow: 'Dear reader of practical Teacher; I am a japanise who Admire of England, and always longing British Correspondents. So, please write me in card or in letter, I will answer as soon as I can with a japanise picture card.'—(full adress given.)

"I hope my respectable Editor will permit me to be introduced among your readers on the P. T.

"I hope your answer, and may I ask your name? for I never forget your house.—Yours truly,

"Kinnosuké, Sasame."

My own comments are: (1) I wish I could write in Japanese half so well as this correspondent writes in my mother-tongue; (2) I hope that the many thousands of *Practical Teacher* readers will not all speak at once; (3) I know nothing about the respectability of the Editor of this journal.

The Ideal Literature Primer.

I wish that Hildegarde Hawthorne, who writes on "Books and Reading" in that inimitable young folks' monthly, *St. Nicholas*, would write a school primer of English literature, and write the whole of it up to this sample :—

"Thackeray wrote his one child's story, *The Rose and the Ring*, of which I have already spoken to you, as a kind of Christmas play. Fat Prince Bulbo and fine Prince Giglio, with the maidens they loved, and the queer adventures they had, and the curious enchantments—that story will simply make you laugh; it has nothing at all sad in it, not a single tear, even when Rosalba almost gets eaten by the lions; because, you see, you are just sure she will be saved somehow—and she—well, find out for yourselves!"

A Riot of Imagination.

Appropriately enough, the papers set at the recent Certificate Examination are tied together, not in red tape, but in beautiful pale green ribbon—typical of imaginative delicacy, for here are three of the posers from the paper on the "Teaching of Drawing" :—

"Make any drawings which you consider suitable to illustrate *one* of the following passages :—

"1. Good-bye, good-bye to everything!
To house and garden, field and lawn,
The meadow gates we swung upon,
The pump and stable, tree and swing,
Good-bye, good-bye to everything!
R. L. Stevenson.—*Farewell to the Farm.*

"2. A wide sweep of ribbed and yellow sand, palpitating in the heat, stretches away to the heaving tide lazily lapping the shining silver of the shore. In the distance, dimly seen across the broad brown water, rise the faint far outlines of Devon. F. A. Knight.—*By Leafy Ways.*"

"3. Three fishers went sailing away to the West,
Away to the West as the sun went down;
Each thought on the woman who loved him the best.
And the children stood watching them out of the town."
Charles Kingsley.—*The Three Fishers.*

I would give a great deal to be allowed the privilege of inspecting the students' efforts to follow the flight of the official Pegasus. I want to meet the student who can show "yellow sand palpitating in the heat."

The Newer Outlook.

From the paper on "Teaching Method" I give three questions which appear to me to be inspired by the new spirit—practical, helpful, and sensible—which pervades the educationist's work to-day :—

"What physical defects apart from those of sight and hearing may you expect to meet with in an elementary school? Say how you would deal with children thus defective so that they should suffer as little as possible in their school work from the drawbacks to which their defect may render them liable.

"What is meant by defects in articulation? Give examples, if possible, from your own observation, distinguishiug such defects from mistakes in pronunciation and from peculiarities of local dialect, and saying how you would propose to cure them?

"Compare any two forms of handwork with which you are familiar in respect of the opportunity they offer for free constructive work by the children."

If I may venture to say so, the student who is a constant reader of our columns ought to have found no difficulty with questions such as these.

My Solicitor.

The Incorporated Law Society ought undoubtedly to approach the Board of Education with a protest on the ground that the following "history" question is one for which the answers ought to be handsomely paid by anxious clients :—

"Show in regard to *three* of the following the manner and the procedure by which your offence would be dealt with :—

"(*a*) You have committed a murder.

"(*b*) The smell arising from an insanitary stable owned by you is injurious to your neighbours.

"(*c*) While travelling in a motor-car, you knock down an unoffending foot-passenger.

"(*d*) You do not pay your rates.

"(*e*) Being a candidate for Parliament, you threaten to dismiss any of your workmen who do not vote for you."

There is a suspicion of bad taste in (*a*). Perhaps, however, it embodies indirect moral instruction—"But for the grace of God there goes Richard Baxter!" I think it was Richard Baxter. There is more than a suspicion of humour in the other questions. I leave the task of extracting it to my readers.

Still More Imagination.

We are not yet finished with the imaginative flights of the examiners of the Board of Education. Here is a faithful extract from the geography (!) paper, which has been humanised with a vengeance. Our poets and prose writers must, however, learn the virtue of exactitude if their flights of fancy are ultimately to adorn the pages of questions for the Certificate Examination :—

"1. A map, reproduced from that in *Treasure Island*, is supplied. The island is described as containing, among other things, evergreen oaks and nutmeg trees,

rattlesnakes and goats; parts are subject to malaria; the text suggests that it lies in the region of Caracas and Porto Bello, and one entry of the pirate refers to an event occurring at 62° 17′ 20″—19° 2′ 40″. What can you infer from the map as to the geographical features of the island and the surrounding sea? State, as nearly as you can, where the island is situated. Give its probable climate, and suggest what might be grown there if it were brought under cultivation.

"2. Draw a diagrammatic map, using contours and Ordnance Survey symbols, to represent the country of the stream described in the following quotation:

"From its sources which well
In the tarn on the fell
It runs and it creeps
For awhile, till it sleeps
In its own little lake.

* * * *

"Till in this rapid race
On which it is bent
It reaches the place
Of its steep descent."

My Prophetic Soul!

The choosing of the subjects for the essay must afford the examiner a certain amount of relaxation, being an absolutely irresponsible matter. Here is the result of his intellectual dallyings:—

"1. The true function of an elementary school: its possibilities and limitations.

"2. England as it may be in 1960."

The former is a hard nut to crack, and I am not sure that the answer does not depend upon one's shade of politics. As for the latter, it affords endless opportunities for the humorist. I could myself prophesy, but will refrain.

A Really Useful Paper.

I give the complete set of gardening questions, if only to show how Mr. Bruce Cook's "Practical Notes" have formed the basis for the examination:—

"1. A garden crop of early potatoes is to be cultivated on land cleared the previous autumn. Give an account of the preparation of the land, the treatment of the seed potatoes, the method of planting, and the after management. What precautions would you take for the prevention of disease?

"2. Why are fruit trees grafted? Describe how the operation of grafting is carried out in the case of young fruit trees. Show by means of drawings the nature of the union of stock and scion after five or six years' growth.

"3. Describe, with the aid of drawings, the preparation of geranium cuttings, and the layering of carnations; show from what points the roots spring in both cases.

"4. Briefly distinguish between *rootlets* and *roothairs* as regards size, position, appearance, structure, and function. Illustrate your answer where necessary with sketches.

"5. Mention two examples in each case of plants with the following characteristics:—

"(*a*) Leaf tendrils.
"(*b*) Underground stems.
"(*c*) Flowers pollinated by the agency of wind.
"(*d*) Biennials.
"(*e*) Flowers which come out before the leaves.
"(*f*) Food stored in specially modified leaves.

"6. Describe with the aid of a drawing a longitudinal section through the middle of the flower of a bramble or wild rose; describe also the structure of the ripe fruit.

"7. A leaf is exposed for some time to bright sunlight in air from which the carbon dioxide has been removed. It is then boiled in water, soaked in alcohol, and finally placed in a solution of iodine. What effect is produced upon the leaf by these various liquids, and what does the experiment prove?

8. "Describe experiments which have shown that the growth of a plant is affected by the presence or absence of certain elements in the soil. State the chief results obtained.

Marching On.

Those who have seen the announcements of the death of Mrs. Julia Ward Howe will be interested in reading again her Battle Hymn of the Republic, written at the time of the American Civil War:—

"Mine eyes have seen the glory of the coming of the Lord:
He is trampling through the vineyard where the grapes of wrath are stored;
He hath loosed the fateful lightnings of his terrible swift sword:
His truth is marching on.

"I have seen Him in the watch-fires of an hundred circling camps,
They have builded Him an altar in the evening dews and damps;
I can read His righteous sentence by the dim and flaring lamps:
His day is marching on.

"I have read a fiery gospel writ in burnished rows of steel:
'As ye deal with my contemners so with you my grace shall deal.'
Let the hero born of woman crush the serpent with his heel,
Since God is marching on.

"He has sounded forth the trumpet that shall never call retreat;
He is sifting out the hearts of men before His judgment seat.
Oh! be swift, my soul, to answer Him, be jubilant, my feet!
Our God is marching on.

"In the beauty of the lilies Christ was born across the sea,
With a glory in His bosom that transfigures you and me;
As He died to make men holy, let us die to make men free:
While God is marching on."

The Picture Palace.

Mr. Holman has a warning article on "Children and Cinematographs" in *Child Study*. I agree with Mr. Holman that we ought to be a little sceptical in accepting the extravagant claims that have been made in some quarters as to the educational value of the cinematograph. Its uses are limited, its perils are many. Prominent is "the creation of an indisposition for, and active resistance of, that self-effort and constructive activity which are the corner-stones of the real education process." My personal impressions are (1) that the character of the entertainment is calculated to have a very bad effect upon the eyesight; (2) that for interest and enjoyment the shows are not to be compared with the "dioramas" of our youth; (3) that in the best picture palaces of the large towns there is no complaint to be made with regard to indecency—purity is the best policy.

A PAUSE IN THE BATTLE.

"Oh, the little birds sang east,
And the little birds sang west,
And I smiled to think God's greatness
Flowed around our incompleteness—
Round our restlessness, His rest."

E. B. Browning.

MODERN SCIENCE NOTES.

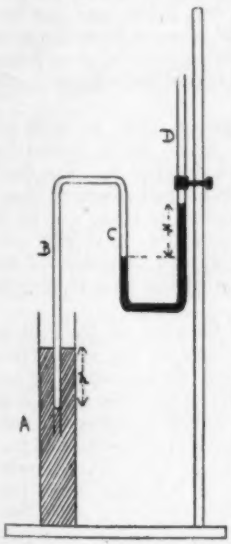
BY J. G. M^{c}INTOSH, B.SC., SECONDARY SCHOOL, GATESHEAD.

An Improved U-Tube.

THE ordinary form of tube, classic in its antiquity, has many disadvantages in experimental use in the laboratory. It is difficult to keep clean. In the cases where liquids of different densities which do not mix are used, the pupil will persist in pouring the wrong liquid down one limb, or the heavier liquid on the surface of the lighter; while in experiments where mercury is used to separate liquids which mix, the result is dirty tubes, often an alarming waste of mercury, etc.

Hare's apparatus is another hoary veteran which one often feels inclined to banish from the laboratory, if for health reasons only. The drawing up of the liquids in the tubes, often by personal suction, calls for constant supervision over the British youth, who is not at any time particularly careful, or an ardent convert to the microbe theory.

With a view to mitigating these disadvantages I have introduced into the laboratory work the type of tube which is figured in the diagram, and which, I believe, has many points in its favour.



An improved U-tube.

A is a vessel containing the liquid whose density is required, and which is transparent. The limb B of the tube can be of any length suitable to the vessel, A. In the limbs C D water is placed. For class demonstration I generally colour this with a little aniline dye. On the limb B being immersed in the liquid in A we obtain a head of water in D (say, x cm.), which corresponds in pressure to the head of liquid in A (say, h cm.). The usual calculation gives the density of the liquid in A. Personally, I find that first and second year students in the secondary school have little difficulty in understanding the principles upon which the calculation is based. It appears certainly less complicated than the usual form of Hare's apparatus.

In the case where the density of an opaque liquid is required, the positions of the liquids are reversed, water being placed in A and the liquid in C D.

One of the great advantages of this form is that, by gradually lowering the tube into the vessel A, a number of results can be taken very quickly. The tube is easily kept clean, the end in A being immersed in water or other cleansing liquid when the experiment is finished.

The apparatus is economical; the liquid in A may be returned to the stock solution with little or no waste. It is cheap, and easily replaced if broken.

By replacing A with a graduated jar, the apparatus may be used to show that pressure is proportional to depth. The head of water (x cm.) in each case being plotted against the depth, h, the resulting straight line graph is obtained, and the law empirically derived. In the form of apparatus used the measurements were all reckoned from the bench top with a metre rule. The tube may, however, be calibrated, and the measurements read directly.

A Class Demonstration Experiment on the Principle of Buoyancy.

I have to acknowledge my indebtedness to my colleague, Mr. E. P. Bennett, M.Sc., for the following interesting class demonstration experiment. A vessel (see Fig. 2) containing any liquid is suspended from a spring balance, A, and the weight of the vessel and liquid taken. The solid, S, is then suspended from the balance, B, in air, and its weight noted. It is then suspended in the liquid. The apparent loss in weight is obtained from B, and this measures the up-thrust of the liquid on the body. Simultaneously, the apparent gain in weight of the liquid caused by the down-thrust of the body is read on balance, A. The experiment is valuable as a class demonstration, showing very clearly a point often slurred over in teaching. Different liquids may be placed in turn in the vessel, and the principle demonstrated generally.

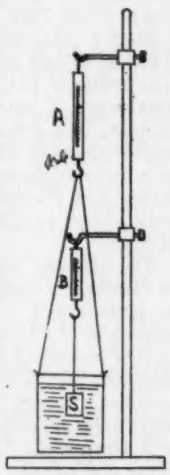


Fig. 2.

Fig. 3 shows an experimental method of demonstrating another source of difficulty to the junior student. Two equal masses of the same material—that is, equal volumes—are suspended from a simple lever. Mass A is spherical in form, while mass B is in the form of a thin, flat cylinder. The two masses are then immersed in two vessels of the same liquid, and the resulting up-thrust shown to be the same in each case, thus demonstrating the fallacy of the reasoning that the mass B will have the greater up-thrust.

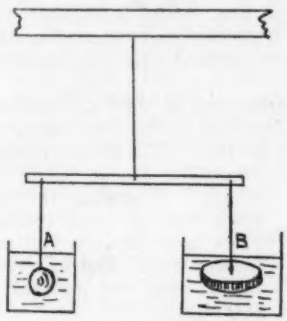


Fig. 3.

A Simple Form of Rain Gauge and Barometer.

I have had an inquiry from a correspondent regarding the construction of a simple form of rain gauge and barometer for use in the geographical lessons.

The former is easily constructed, and the graduation of the receptacle for holding the rain a good exercise for class students.

A good wide funnel may be obtained from any tinsmith. Its diameter should be carefully measured, and the area of cross-section calculated. The vessel into

which the rain drains may either be a graduated glass measuring vessel, which must be subsequently calibrated, or a plain measuring vessel ungraduated. The diameter of this vessel must also be obtained, and the distance between graduations representing 0·01 inch of rainfall ascertained. On the whole, the former method used in conjunction with a calibration graph is preferable. The arrangement should be enclosed as a further protection.

The making of a barometer for ordinary use is a more difficult matter. Obtain a piece of fairly stout glass tubing of about 1 cm. internal diameter, and 36 inches long. Choose a piece as uniform in cross-section as possible. The end should be carefully seated in a blowpipe flame. The ordinary barometer tubes which are quoted in the catalogues of instrument makers are often too narrow in bore, and absurdly thick. The tube must be thoroughly cleansed with aqua regia, heated by the addition of a little sulphuric acid, and then washed with distilled water and carefully dried. A little medicated cotton wool placed in the open end will prevent the entrance of dust.

The mercury with which the tube is filled must also be thoroughly clean. Should it be merely dusty, it may be poured into a dry filter paper, having a tiny hole pierced at the bottom of the filter cone. If it requires further treatment it should be shaken with concentrated sulphuric acid in a strong, well-stoppered bottle until it becomes granular. The contents may then be poured into a large quantity of water, and the mercury collected in a clean dish. It may then be dried with blotting-paper and tested.

The tube is then filled with mercury, all air bubbles eliminated, and inverted in a porcelain trough containing mercury, and rigidly fixed. A thin coating of sperm oil on the top of the mercury in the trough is advisable.

A vertical scale may be placed alongside the tube. The whole apparatus should be enclosed in a box with glass front. In the case where the expenditure of a fairly large sum is not justified, this instrument will do fairly well.

A better instrument is Joly's glycerine barometer. This is fully described in the Proceedings of the Royal Dublin Society for 1892. The device enables a glycerine barometer to be made of moderate length. Following the directions, I made one of these instruments some years ago, and it is still in use at the present time. The following details are taken from the *Journal* of the Proceedings.

FIG. 4.

"A plug or disc of ebonite or ivory, having a diameter a little less than the barometer tube, is made with a steel pin projecting from it, a small sphere or cylinder of wood or ivory called the float being fastened to the end of the pin, as shown at B in Fig. 4.

"Placed at the bottom of a column of mercury, the float tends to rise with a force equal to the difference in weight of the float and the mercury it displaces. If, however, the float be made of the right bulk, it will be unable to pull the plug after it through the mercury. The lower surface of the mercury, being covered by the disc or plug, remains unbroken by the weight of the mercury column above, and through the very narrow annular space around the plug the mercury does not pass. A column of mercury may thus be sustained in a wide tube closed at the upper end only; moreover, the elasticity of the air permits the column to be oscillated with considerable violence without any mercury escaping or air creeping up through it. The space below the mercury may be filled with glycerine, and the tube may dip into an open vessel of glycerine. The mercury will thus appear to float on the glycerine, and the latter will enter or leave the tube as the mercury rises or falls. If the space above the mercury be a vacuum, and the mercury column say 27 inches long, the glycerine column below the tube must be of such a length that the joint pressure of the mercury and glycerine shall be equal to the atmospheric pressure. If now the atmospheric pressure rise or fall, as much glycerine must enter or leave the tube as if it were a glycerine barometer of corresponding bore. Hence the range of the instrument is the same as that of a glycerine barometer, though its length need not be more than a few feet, while its sensitiveness and promptness is probably greater, as there is a much shorter length of the viscous glycerine to move.

"The tube is filled as follows. A glass tube, about $\frac{1}{2}$ or $\frac{3}{4}$ of an inch in diameter, and, say, 8 feet long, has one end closed and filled to a height of some 27 inches with clean, dry, warm mercury, adhering bubbles of air being removed by tapping the closed end of the tube on a soft surface.

"An ebonite plug or cylinder, A (Fig. 4), with its length equal to its diameter, which latter should be nearly equal to the tube, is now dropped in. The float (B) attached to the plug may be a small sphere of ebonite, as in the figure (which is drawn to scale); or for a barometer tube $\frac{3}{4}$ of an inch diameter, an ebonite cylinder $\frac{1}{2}$ an inch long and $\frac{1}{4}$ of an inch diameter will be found suitable. The proportion of the float to plug is important.

"Mercury is then poured on the plug till the float is completely submerged. Glycerine that has been previously warmed, and its dissolved air extracted by an air-pump, is now poured in. When the tube is full it is carefully corked, so that no air-bubble is entrapped, and then the tube is inverted in a bath of glycerine, and the cork carefully withdrawn. The column sinks slowly until the atmospheric pressure is balanced, when the operation is complete. The bath may be a glass dish about 4 inches deep and 8 inches diameter, or a rectangular trough. A wooden cover excludes dust, and a little sperm oil on the top prevents the absorption of moisture from the air. The scale must be set by an ordinary barometer, and in the graduation the density of the glycerine employed must be taken into account. If this be 1·26, say, then 1·1 inches will be about equivalent to 0·1 inch in the mercurial barometer."

SPECIAL NOTICE.

MEDICAL INSPECTION.

THE Editor has much pleasure in introducing a new contributor, Mr. H. Emlyn Jones, M.R.C.S., L.R.C.P., who writes this month on "Nervousness in School Children" (see p. 491), and who will be glad to answer queries addressed to the Office of this Journal.

Our Needlework Column.

BY J. A. FLEMING, AUTHORESS OF "COMMON-SENSE NEEDLEWORK."

COMMON-SENSE COMFORTABLE CLOTHING FOR CHILDREN.

Dolls' Garments.

THE drawing and cutting out of patterns for dolls' clothing form excellent preparatory training in needlework for the lower classes.

The "mothering" instinct is so strong in feminine nature that anything that appeals to and encourages it is sure to find a ready response in the breasts of little girls. They all love pretty things for their dolls, and are happy when being taught how to make them. They will spend hours playing with them if only they are properly directed.

The absorbed interest thus engendered is a powerful factor in the training in habits of concentration.

The lessons are also valuable as encouraging love for babies and inculcating good taste in dress.

The desire to make clothes for "dolly" may be so developed as to induce them to make all their *own clothing*.

The value of the miniature garment in the teaching of sewing has not yet received full recognition.

This comparatively easily-executed little model attracts and allures, and at the same time induces an inclination to *finish* the garment, which the making of large articles of underwear entirely fails to do.

A uniform rate of progress, the lack of which has been such a bar to the development of the subject, and which has operated until the collective system of teaching has been sacrificed to the individual, can be maintained. That in itself is a great gain, as it becomes possible to *teach* the putting together, and the working of the different parts of garments.

All children taught on the "Commonsense Needlework" plan can fix quickly, sew easily, and follow instructions intelligently, so that the construction of dolls' garments by large classes becomes an actual possibility.

Not that they should *continue* to make dolls' garments; they are but the means by which the worker may become capable of applying her eye, brain, hand, and needle to anything that may be required of her.

Much calico, etc., is needed, but when parents and education authorities realise the value of the work, the amount of the material for the proper working of the plan will be cheerfully allowed.

The teacher should provide herself with a complete set of the garments to be used as models in the demonstration lessons. The garments photographed are made for a doll 16″ long. Smaller or larger sizes can be made by altering the initial paper measurements — for example, the drawers are planned out in an oblong 6″ by 9″; but 8″ by 12″ (which keeps the same proportion) would fit a larger doll.

The doll should be measured from the back of the waist to just below the knee. The width is once and a half the length. The folding, marking, and drawing will be exactly the same as in the model.

It should be borne in mind that *very* small garments are unsuited to unskilled fingers, especially in such parts as sleeves, etc., which are difficult to manipulate.

Patterns.—These are quite simple, having no elaborations. All can be completed without calling into requisition the more difficult operations of gathering, making vents, or any other exercise which children in the lower classes are not usually taught. Small pleats are laid where fullness is required. Although frills occur on several of the garments they may be omitted if the material be cut long enough to do without them, and to make allowance for hems.

The length of the garment when completed is stated in each case, so it will be a very easy matter to calculate how much is needed.

To avoid the necessity for gathers, vent, and the setting-in of sleeves, the kimono type of nightdress has been adopted, with sleeves and body in one to slip over the head. The neck-opening is wide enough for that purpose, and it is intended to be drawn up to the neck by baby ribbon threaded through the lace.

Two sets of underclothing are described—one consisting of chemise, drawers, and stays, with flannel and calico petticoats, and the other combinations along with the petticoats.

The material adopted should be soft and thin, as it is easier to fit than stiff calico, which is often so full of dressing that joins are necessarily thick and clumsy. It should not, however, be so coarse and open as to encourage slovenly work.

Patterns.—These are made by folding and proportion, exactly in the same way as the larger garments, so that there will be nothing to unlearn.

A demonstration lesson should be given, in order to teach clearly the different stages in the folding of the paper, creasing, drawing of the patterns, etc.

The use of the word "fold" in the pattern should be explained and illustrated, and the purposes served by the lettering; the lines curved should be elicited and compared with the model before the folding and drawing actually commence. The girls will thus know what part of a pattern each line represents. The patterns may be pinned on to the material, and either cut out or outlined in pencil and cut out afterwards.

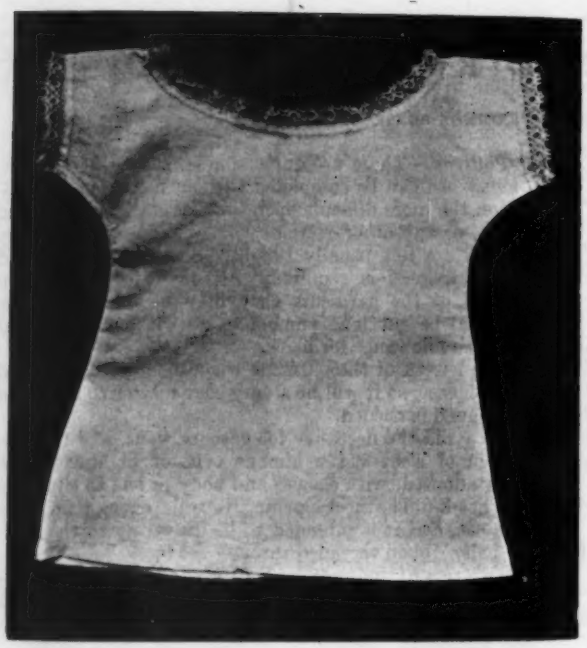
Making-up the Garments.—The joins can be accomplished by means of a counter-hem, a run-and-fell seam, or a seam-and-fell according to the stage which the pupil has reached, or according to the special practice which the teacher feels it necessary to secure.

It is sometimes a good plan to join the different garments in different ways, in order to demonstrate the utility of each kind of seam.

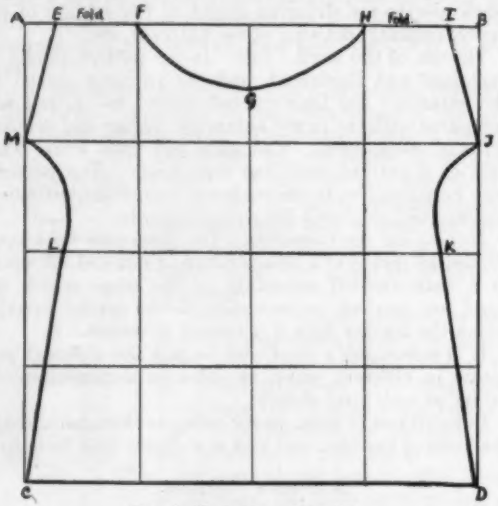
Baby ribbon of some pretty colour is threaded through the holes of the lace, and tied in a dainty bow in front.

A Doll's Chemise.

Take a square of paper, 9″ by 9″.
Mark the corners A, B, C, D.
Fold the paper twice each way.
From A mark E ¼ division in.
From A mark F 1 division in.
From A mark G 2 divisions in, and ½ down.
From B mark H 1 in.
Draw a curve from F to H, passing through G.
From B mark I ¼ in.



From B mark J 1 down.
Join I and J by a straight line.
From B mark K 2 down and ½ in.
Draw a curved line from J to D, passing through K.
From C mark L 2 up and ½ in.
From A mark M 1 down.
Draw a curved line from C to M, passing through L.
Join M and E by a straight line.



DOLL'S CHEMISE. (9″ × 9″).

Making up the Garment.—Join the seams by any method that will secure the desired practice. See that any little irregularities are snipped off the *bottom* of the seams before the hem is fixed. The hems on the bottom of the garment and on the sleeves should be done before that of the neck, as straight hems are easier to fix than curved ones. The neck hem will have to be a very narrow one, or it will not fit round the curves. The teacher should show the class how to stretch the material slightly round the curves to avoid the puckering that would otherwise result. The hem must be tacked before being sewn.

How to set on Lace.—This will be found to be quite within the children's ability, if the teacher is careful to teach it in a progressive fashion. They should be shown how to measure the length required for each part, allowing for the joining and a little over, that the lace may lie easily and yet not be frilled. Teach how to join the lace by a counter-hem. Pin the lace, join to the shoulder, fold on the right side of the garment. Double it in two, and pin the half to the opposite shoulder. Pin lace and chemise together in the middle of both back and front. Tack them into position.

The join in the sleeve lace should meet the under-arm join, the middle being pinned to the shoulder fold. Seaming is used to sew the lace to the chemise. Sew from right to left, on the wrong side of the work. The needle is pointed straight to the worker. The work is not placed round the *end* of the finger as in seaming, but is held evenly between the first forefinger and the fork of the thumb parallel with them. It is held firm with the lace towards the worker. The end of the cotton must be allowed to lie on the top of the seam. It *must not* be pushed down with the tip end of the needle, as is done in seaming in conjunction with a fell, otherwise the ends of the cotton would be visible on the *right* side of the garment. In joining the new cotton, *both* should lie on the top in the same direction, being made secure by a few seaming stitches. The sewing stitches should not be placed too close together, or they will make a heavy seam with a ridge. They must come as near the edge as possible, so as to make the stitches as little visible as they can be.

As the lace is held towards the worker it can be eased slightly, or more fully as desired, by means of the left thumb, which can move it along. It is well to remember, in using lace and lace insertion, that there is a thread running through the straight edge of both, which may be drawn up to gather it. Being part of the lace itself, it not only saves trouble, but it secures daintier results than does the inserting of an extra thread.

DOLL'S NIGHTDRESS.

As this forms a stage in advance of the chemise, dealing only with a larger area, it will not be necessary to describe it in detail.

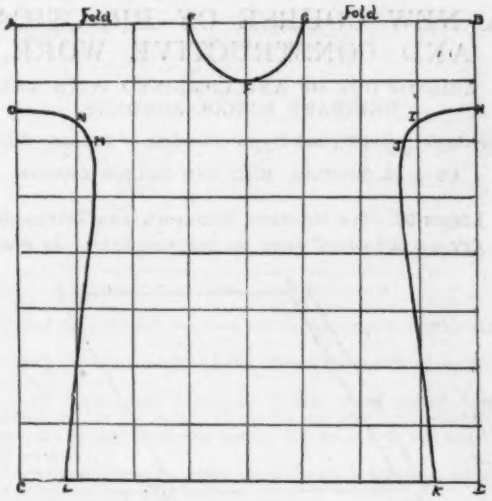
If the seams of the chemise have been joined by one method, it would be well to adopt another kind of join for the nightdress.

The *tacking* of the garment should commence from the sleeves, as any small irregularity would be better cut from the bottom of the nightdress than from the bottom of the sleeves.

The neck curve is only long enough to allow the garment to slip easily over the doll's head. The fullness is drawn up by baby ribbon threaded through the lace.

DOLL'S COMBINATIONS.

Length from shoulder to the edge of the frill = 10″.
Take a double square of paper, 8″ by 8″.
Fold it twice each way.



DOLL'S ONE PIECE NIGHTDRESS. (15″ × 15″.)

It is not necessary to enter into details of drawing the pattern on paper, as the diagram is clear enough.

Tear off a strip of calico, 16″ by 8″.

Double it to form a square, having the fold across the top. Lay the pattern on, and cut it out. Cut the front open from top to bottom along the middle line.

Cut up the back, along the same line, three-quarters of the bottom division to form the legs.

Join the sides by a counter-hem, if that method of joining has not already been used.

Join both legs in the same way.

Make a narrow hem down each front.

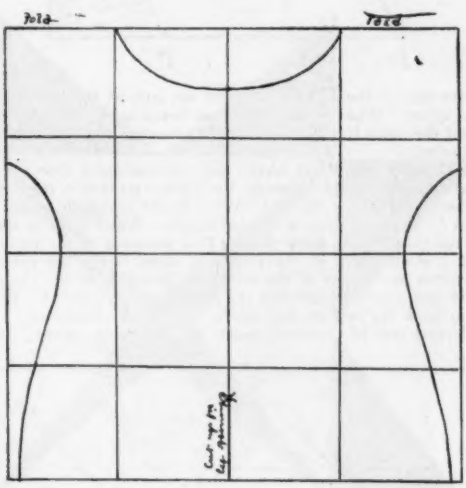
Lay a fold on the right side, at the bottom of each leg, and tack it down ready for the frill.

(To be continued.)

COMBINATIONS. (8″ × 8″; frill 2½ when finished.)

ANSWER TO CORRESPONDENT.

INCE.—You would find Jones's sewing-machine invaluable for both school and home work. Did you see my reply to your query last month? I hope the petticoat pattern is what you need. You gave no particulars as to size or material, so I have drafted it to normal measure.



QUERY COLUMN.

THE Editor deeply regrets the necessity for omitting the solutions to queries sent in during the month, but has no alternative.

A NEW COURSE OF PRACTICAL AND CONSTRUCTIVE WORK,

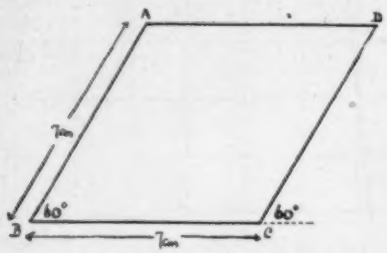
ARISING OUT OF AND COMBINED WITH THE ORDINARY SCHOOL SUBJECTS.

For Junior, Middle, and Upper Divisions of Primary Schools.

BY A. R. PICKLES, M.A., AND DALTON GRANGE.

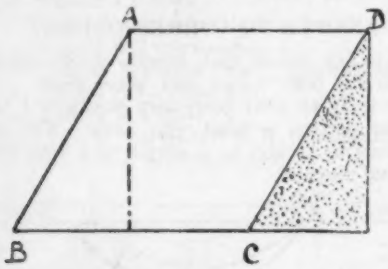
Lesson 52.—The Rhombus, Rhomboid, and Trapezoid.

1. Cut out of coloured paper the following figure. In what is



this like a square? In what is it unlike a square? By folding the paper along the shorter diagonal compare the two smaller angles. Fold along the longer diagonal to compare the larger angles of the figure.

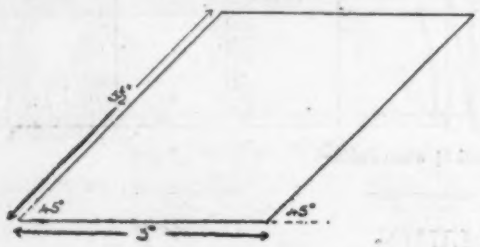
2. By means of your set-square draw a line perpendicular to the line BC from the point A. Find by means of your set-square the size of each of the angles at A. What is their sum? What



is the size of the angle C? Find the sum of the four angles of the figure. What is the sum of the four angles of a square? In what else does this figure resemble a square? Repeat the name rhombus.

3. Cut the rhombus along this perpendicular line. Fix the portion cut away as shown by the shaded portion in the diagram. What is the new figure? What is the rectangle equal to in area? Find the area of the rectangle. What, then, is the area of the rhombus? How do you find the area of the rectangle? What is the base of the rectangle equal to in the rhombus? What is the height of the rectangle equal to in the rhombus? How can you therefore find the area of the rhombus? Write in your book the rule for finding the area of the rhombus.

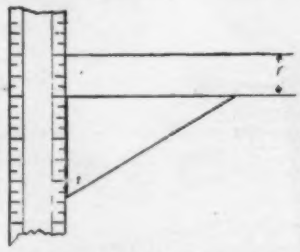
4. Cut out of coloured paper the following figure. Is it a



rhombus? Is it a rectangle? A square? Why not? In what is it like a rectangle? Give the name "rhomboid."

5. Proceed as in 2 and 3. State one rule for finding the area of [a square, rectangle, [rhombus, and rhomboid. (Base × by perpendicular height.)

6. Show the class how to draw parallel lines by means of a ruler and set-square.



(*a*) Place set-square with an edge on line which it is required to draw parallel to.

(*b*) Bring ruler against the set-square, as shown in the diagram.

(*c*) Slide the set-square along the ruler edge.

N.B.—When the ruler and set-square are used as in the diagram, it is possible to slide the set-square along the ruler the required distance, 1½", 2", etc.

Allow pupils to draw numerous parallel lines in this manner on practice drawing-paper.

Some Exercises.

1. Draw a line 4" long. 1½" above it draw another line parallel to it. From the left-hand end of the first line draw a slanting line 2" long to the second line. Finish the rhomboid by drawing another slanting line parallel to this.

(*a*) What is the area of the rhomboid?

(*b*) On the base construct a rectangle which is similar in area to the rhomboid.

(*c*) Write down the perimeter of this rectangle.

(*d*) Measure and write down the length of the longer diagonal of the rhomboid.

(*e*) What is the length of the rectangle?

2. Draw a square of 3" side. Draw the diagonal. Then draw two parallel lines, so that you will have a rhomboid equal in area to the square.

(*a*) What is the area of the rhomboid?

(*b*) Measure and write down the length of a sloping side of the rhomboid.

(*c*) Cut off from this a part equal to the length of the base. Measure and write down their difference.

(*d*) Write down the area of the part of the rhomboid that is outside the square.

(*e*) Find the perimeter of the rhomboid.

Introduce here the word parallelogram. What is the rule for finding the area of a parallelogram?

Ans. 1. (*a*) 6 sq. in. (*c*) 4 inches. (*c*) 1¼ in.
(*c*) 11 inches. 2. (*a*) 9 sq. in. (*d*) 4½ sq. in.
(*d*) 5½ inhes. (*b*) 4¼ in. (*e*) 14½ inches.

The Trapezoid.

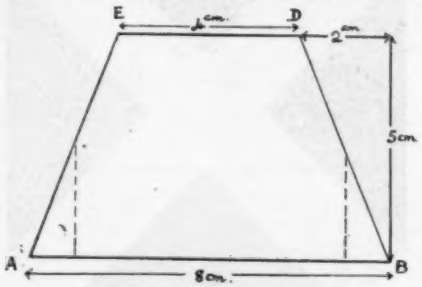
1. Cut out of coloured paper the figure ABDE. (The drawing must be done on the coloured side of the paper in all these.) The

sides AB and DE are parallel. How does this figure differ from a square? A rectangle? A rhombus? A rhomboid? In what is it similar to these quadrilaterals? Is it a parallelogram? Why? Give the name trapezoid.

At C, 1" from A, draw a dotted line perpendicular to the base AB. Cut along this dotted line. Fix the piece cut out, as shown on the pupil's page, so as to form a rectangle.

2. What is the total length of the two parallel sides before cutting? What is the figure made by moving the piece? Why a rectangle? What is the sum of the sides that were parallel in the trapezoid? What was their sum before cutting? What is the difference between the sum of these two parallel sides now and before they were cut? How could you find the base of the rectangle by calculation? What is the area of the rectangle? Of the trapezoid? Find the area of the trapezoid by calculation.

3. Cut out of coloured paper another figure, ABDE. How does



this figure differ from the other figure cut out? In what is it similar?

One cm. from each end of the base draw lines perpendicular to the base. Cut the trapezoid along these lines. Fix the parts cut off, as shown on the pupil's page, so as to form a rectangle.

4. Proceed as in 2.

5. Cut out of coloured paper the accompanying figure. Proceed as before.

What is the first step in finding the area of the trapezoid? Second step? How do you find the area of a trapezoid? Write the rule in your books.

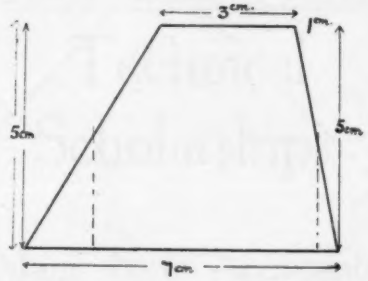
(The teacher might give here several simple sketches with dimensions of trapezoids, the pupils finding the area.)

1. Construct a square of 4″ side, using dotted lines. Increase the base to 5″, and draw a trapezoid (ordinary lines) having the same area and height as the square.

(*a*) What is the sum of the areas of the square and trapezoid?

(*b*) Measure the shortest diagonal of the trapezoid.

(*c*) Find the length of the sloping side of the trapezoid.



(*d*) Find the difference between the two perimeters arithmetically.

(*e*) Find the total length of the dotted lines covered by the trapezoid.

2. Draw a rectangle 6 cm. by 5 cm., using dotted lines. Thicken 2 cm. in the centre of the longest side, and construct a trapezoid on this thick line having the same area and height as the rectangle.

(*a*) Two long sides of the rectangle are equal in length to which two sides of the trapezoid?

(*b*) What is the sum of the two sloping sides of the trapezoid?

(*c*) How much longer is the perimeter of the trapezoid than that of the rectangle?

(*d*) Join the two points where the sides of the trapezoid cut the sides of the rectangle. What is the area of the small rectangle on one side of this line?

(*e*) What is the area of the small trapezoid on the other side of the line?

Ans. 1 (*a*) 32 sq. in.
(*b*) 5 inches.
(*c*) 4½ inches.
(*d*) ½ inch.
(*e*) 12 inches.

2. (*a*) To the two parallel sides.
(*b*) 13 cm.
(*c*) 3 cm.
(*d*) 15 sq. cm.
(*e*) 10 sq. cm.

[Lessons 53–60 introduce no new principle, but provide further exercises on the work of previous lessons. They may, therefore, be omitted where the work cannot be extended.]

LESSON 53.

Use two colours of paper, giving the same colour to alternate pupils. Draw as shown in the diagram. Then cut out along the thick lines. After cutting out, the four three-cornered pieces are exchanged for others of a different colour. These pieces are then fixed on the large piece, which has already been placed in the book (Fig. 2). Questions on lines and areas should be given.

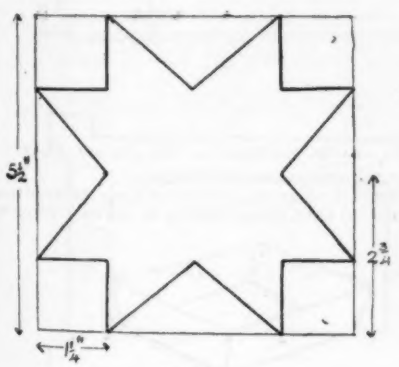


FIG. 1.

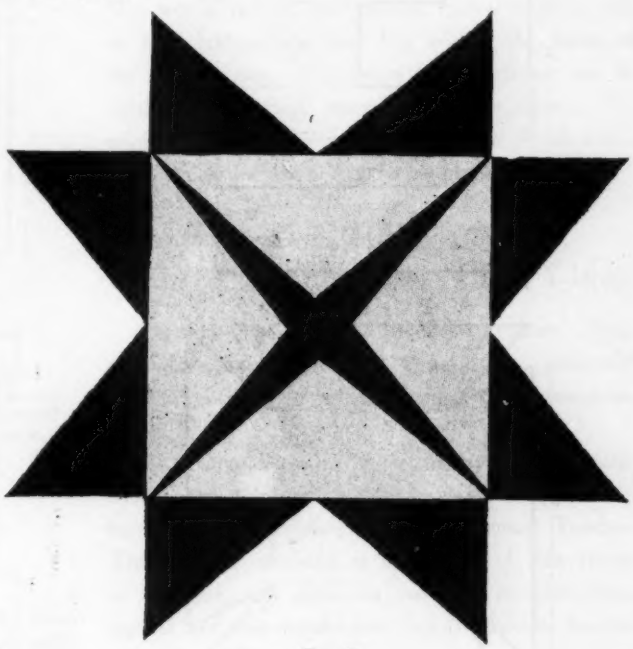


FIG. 2.

See instructions on the previous exercise.

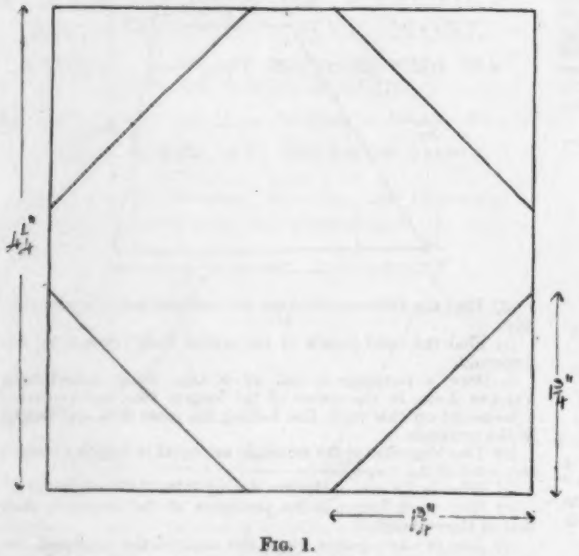


FIG. 1.

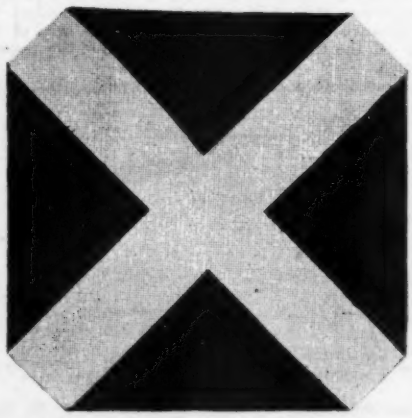


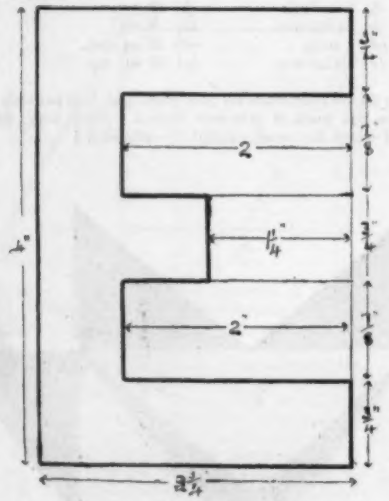
FIG. 2.

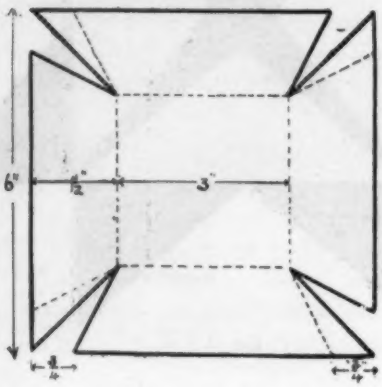
LESSON 54.—AREA OF THE RECTANGLE, INTRODUCING EASY FRACTIONS.

Draw as shown on coloured paper, cut out, and fix in the book. Simple questions on areas and perimeters.

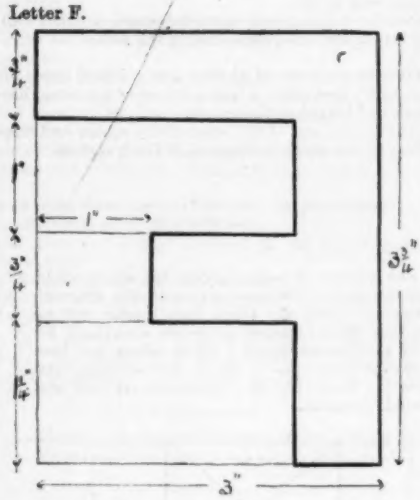
N.B.—The diagram for the letter F should be drawn on the gummed side of the paper.

Letter E.





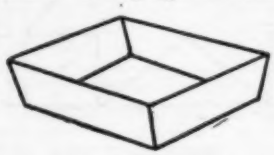
Letter F.



LESSON 55.—PAPER MODELLING.—THE SQUARE TRAY.

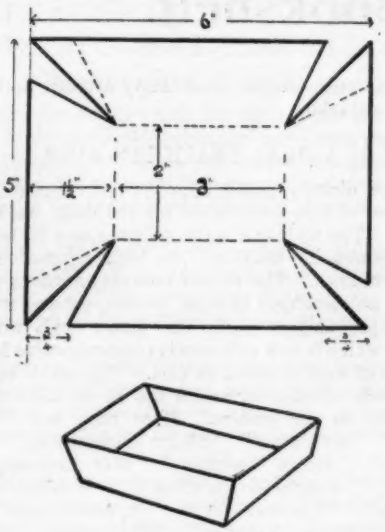
Size of paper required—square of 6" edge.

Draw as shown in the diagram, but cut out along the thick lines, fold along the dotted lines, fixing together as shown. When the



model has been fixed, cut away those portions of the flaps that stand above the edges of the tray. Simple questions on lines and areas.

PAPER MODELLING.—THE RECTANGULAR TRAY.

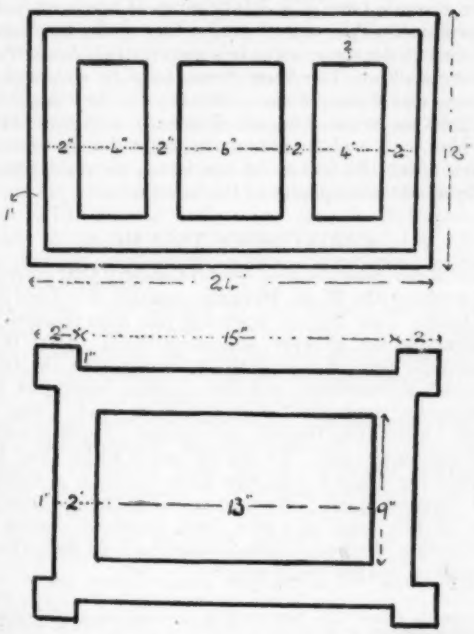


Size of paper required—square of 6" edge.
Directions as above.

LESSON 56.—GRAPHIC ARITHMETIC.

1. Draw a line showing the cost of bacon at 10d. per lb. Then find the cost of (*a*) 4 lbs.; (*b*) 6 lbs.
2. One-inch garden hose is 5d. per foot. Draw a line representing this. Then find the cost of (*a*) 4 feet; (*b*) 7 feet.
3. Five spans equal 45". Represent this on squared paper. What do 27" equal?
4. Seven hats cost £1, 8s. Draw a line showing this. Find the price of five.

LESSON 57.—SIMPLE MENSURATION OF THE PHOTO FRAME AND THE PICTURE FRAME.



Draw quarter size. Then simple questions on areas, perimeters, cost of glass, etc.

"The Practical Teacher" Technical Scholarships.

Many New Applicants.

IT is satisfactory testimony to the success of our Scholarship Scheme that we are daily receiving fresh applications for enrolment. This means that Scholarship holders who have tested the methods of work at the INTERNATIONAL CORRESPONDENCE SCHOOLS are recommending friends to share in the benefits to be derived from our system. We are glad to welcome these somewhat belated applicants, who are *almost* too late.

Our Offer Still Open.

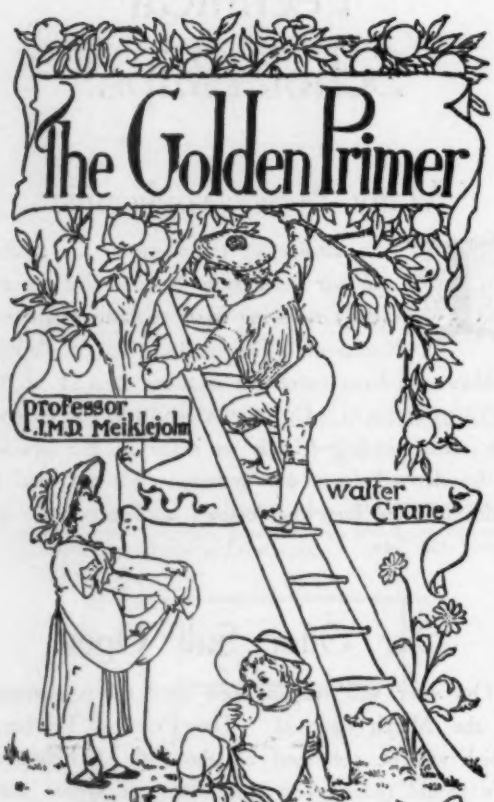
Our offer will remain open until the appearance of the March issue of "The Practical Teacher," which will be published on the 25th of February. We would remind our readers that it applies only to those subscribers who live within the limits of the British Isles. Particulars of the scheme can be obtained from back numbers of this paper. The original offer was made in the issue for April 1910, from which we hereby quote :—

"The Conditions of Our Offer.

"1. The holder of a 'Practical Teacher' Technical Scholarship must be a *bonâ fide* certificated teacher, engaged in actual teaching in a recognised school.

"2. Before a course of instruction can be actually commenced, the applicant must produce the receipt for a year's subscription to 'The Practical Teacher.' This can be obtained at the Office of this journal at any time, and applicants intending to take advantage of our offer should state that the Special Scholarship Form is required."

The Editor's Bookshelf.



READING WITHOUT TEARS.*

We have heard of "reading without tears," and we have —some of us—witnessed the spectacle of reading with tears. Now here is a book which not only banishes tears, but which, by reason of its delightful pictures, actually induces joy. For the pictures the hand of Walter Crane is responsible; Professor Meiklejohn for the general plan and method of the book. That there is no royal road to learning is perfectly well appreciated by the author; but if the road cannot be found, he points out that there is always a ladder leaning against the Tree of Knowledge, and up it who will may climb and gather the fruit. The *Golden Primer* furnishes the rungs of the ladder; its rungs are short and easy, but each step as it is made is from under the climber's foot. Two principles are kept in view in this book: one, that each word should be taught as a whole; and, secondly, that each letter in that word should be true both to the eye and the ear. To enforce these principles the art of Mr. Walter Crane is called in aid, and that, combined with the presentative skill of so able a teacher and educationist as Professor Meiklejohn, has resulted in a book at once unique, charmingly artistic, and educationally valuable.

* *The Golden Primer.* By Professor J. M. D. Meiklejohn. Illustrated in colours by Walter Crane. (Meiklejohn and Holden.)

A REAL TEACHER'S AID.*

We have already made appreciative reference to the usefulness of this publication for the daily work of the teacher. The fifth and sixth volumes now lie before us, and undoubtedly maintain the high reputation of the earlier volumes. The former contains sections on agriculture, philosophical biology, physiology and medicine, and anthropology; while the latter deals with engineering, which is now sufficiently comprehensive for many volumes of such a series as this. This sixth volume is particularly attractive, and a list of its sub-titles may be helpful to our readers. Here they are: "Water Power," "Air Power," "Steam Generation," "Steam Engines," "Steam Turbines," "Gas Engines," "Oil Engines," "Electrical Machinery," "Materials of Construction," "Locomotives," "Tramways and Mono-Rails," "Motor Vehicles," "Navigation," "Inland Waterways," "Aerial Navigation," and "Warships." Both volumes are lavishly and very beautifully illustrated.

A NEW DEPARTURE.†

The purchase of a gift book for a young child is not an easy matter; for though the bookshops are overcrowded with books for younger children, which leave nothing to be desired in the matter of pictorial illustration, it is difficult to find a volume so simply written that it can be read by a young child who can manage easy words and phrases. We are therefore glad to see that Messrs. Nelson have stepped into the breach with their *Fireside Library*, a dainty series of books at 1s. 6d. per volume. This series includes four books at present, and their titles are more or less descriptive—*Bushy Tail*, *Little Snowdrop*, *The Never-Never Land* (a collection of verses), and *Funny Folks*. The type is very large, the margins are broad, and are decorated with thumb-nail sketches, and each book contains eight dainty coloured plates. But the feature of the series, we must repeat, is the absolute simplicity of the letterpress.

A LUXURIOUS VOLUME.‡

Most of our readers know very intimately that entrancing work by Dr. W. M. Thomson, entitled *The Land and the Book*. This famous work has just been reissued by Messrs. Nelson in very handsome form. That it is beautifully printed goes without saying; but the fresh pictorial illustrations, and the capable editing of the well-known explorer, lecturer, author, and "man of parts," Mr. Julian Grande, are worthy of special notice and commendation. No one is better fitted than Mr. Grande for dealing with the Bible lands in a faithful and reverent spirit. We understand that an *edition de luxe* of this book has also been prepared, bound in soft leather, decorated with a beautiful gold design, and printed on opaque India paper.

* *Science in Modern Life.* Edited by J. R. Ainsworth Davis. (The Gresham Publishing Company.)

† *Bushy-Tail, Little Snowdrop, The Never-Never-Land, Funny Folks.* Nelson's Fireside Library. (T. Nelson and Sons.)

‡ *The Land and the Book.* By Dr. W. M. Thomson. (T. Nelson and Sons.)

THE PRACTICAL TRAINING OF THE STUDENT-TEACHER.

BY H. LEATHER, SWINTON.

FROM the chaos into which for many years the question of the practical training of our young teachers has been plunged, one clear conclusion has at length emerged—that the primary teaching profession is to be recruited from the ranks of the bursar and the student-teacher.

The bursar may briefly be defined as the holder of a scholarship tenable in an approved secondary school, who is under the direct obligation of equipping himself as a teacher in the primary schools at some future date.

At the conclusion of his course in the secondary school the bursar may either proceed direct to the training colleges for due certification as a teacher, or he may become a student-teacher for one year before proceeding to college.

In the first event, it is possible that the fully-certificated teacher possesses little practical skill, as the somewhat meagre courses of the practising schools afford but few opportunities of continuous studies in child-life and the pressing problems of school organisation; whereas, in the second, the young teacher has the advantage given by an intimate knowledge gained during a period of twelve months spent in approved schools, and under the guidance of skilled teachers. The advantage of the student-teacher course is already apparent in the preference which is generally given to student-teachers upon leaving college when staff vacancies are being filled; and, other things being equal, the preference of school managers for candidates who have had the advantage of a year of sound practical training is likely to increase as the working of the new system of training becomes more widely appreciated.

And inasmuch as the success of future generations of teachers depends so largely upon the methods of training adopted by the teachers of to-day, it may be profitable of result if the conditions under which the pupil teacher formerly worked be contrasted with those which are associated with his successor of to-day.

Perhaps the greatest advantage of the old system was the intimate knowledge of child-life gained by the pupil teacher, who, himself little more than a child, was naturally in sympathy with those wonderful and oft-times peculiar phenomena which characterise early mental development.

This initial disadvantage to the student-teacher is intensified by his greater intellectuality—for he has already matriculated at one of the universities, or passed the preliminary certificate examination before taking up the practical side of teaching.

On the other hand, the wider knowledge of the student-teacher, and especially his acquaintance with orderly processes of reasoning, gives him a decided advantage so far as the preparation of lessons is concerned; and the fact that the student-teacher prepares for no examination during his year in school enables him to concentrate his energies upon the practical aspects of his profession to an extent which was impossible under the older system.

In order to bring the student-teacher into intimate relation with child nature, his first work would be done in the infant schoolroom, where the first two months of his course could very profitably be spent.

During the first month the general plan of work, with the observation of lessons given, would provide suitable material for consideration; and the student would be required, in making his notes, to particularise on such points as the correlation of the various lessons constituting the school scheme, the connection between the physical activity of young children and mental development, the conduct of children at play, etc.

The second month would be spent in assisting the mistresses, as required, in class work; and for special study three or four backward pupils might be given to him for observation. In each case the individual characteristics would be carefully recorded on separate sheets, and at the end of the month the particulars could be compared with those previously drawn up by the chief and her staff. By means of research work of this type the student-teacher could be made of much use in the school, and at the close of his stay in the infant school he would have gained some idea of the basis of our educational system. Incidentally, it would drive from his mind the strange idea which is apt to lurk in the thoughts of superior young teachers, that there is something lowering in the work of infant-school teaching.

It is exceedingly unfortunate that head teachers of primary schools should not have some voice in the selection of candidates for bursaries and student-teacherships in view of the fact that the pupil teachers who were chosen by their principals made such excellent instructors; but until this disadvantage is made good, the duty of the head teacher is quite clear—in case the student-teacher is found unsuitable for the teaching office his inefficiency should be at once pointed out to the government inspector and the school managers. It is a heart-breaking task for any one to destroy the professional prospects of a youth of eighteen years, for what other occupation can he take up at such a comparatively advanced age?

But the policy of temporising with unsuitable candidates until the student year is over only postpones the evil day; for when the student becomes fully certificated the chances are that he will drift into the ranks of the *unemployable* teacher—that new and startling product of recent educational changes.

After two months' observation of infant-school work the principal teacher should be able to form a shrewd idea as to whether the student-teacher possesses the sympathetic spirit which is essential to successful pedagogic work; and the opinion formed would be strengthened by the work of the student in the standards.

In order that experience of upper school work should be duly gained, the student would next proceed to spend one month with each of the six standards, in order.

The preparation and delivery of formal lessons would now begin; two each week would be sufficient at first, and as the young teacher gained confidence and experience the number might be increased to one lesson every day.

The remaining portion of the student-teacher's time would perhaps best be spent with the senior class, immediately under the supervision of the principal teacher, who would have a favourable opportunity of correcting any faults of method contracted by the young student.

During this period the student teacher would have the opportunity of learning how to keep registers, of drawing up reports and returns relating to ordinary school routine, and of becoming familiar with the multitudinous duties connected with the organisation of a primary school.

In addition to the usual record of his daily work the student-teacher should be able to get thoroughly through one or two standard text-books in school management; and in view of the fact that he has no other subjects to distract his attention, he ought to familiarise himself with the lives and ideals of the great educational reformers.

This would necessitate the regular preparation of work at home, and its due correction by the principal teacher.

As an occasional exercise the student might be required to report on the general outlines of the school scheme of work, in order to show the relation of theoretical to practical aspects of education; at other times he might be asked to sketch the plan of the history, geography, or other readers used in the school, and to make suggestions thereon; or he might prepare a short paper on the suitability of the literary matter of a reader for the pupils whom it is intended for. When student-teachers possess exceptional knowledge in certain subjects it will often be found advantageous to allow them to specialise somewhat by taking lessons on such subjects in several classes.

The student-teacher should be present at all staff meetings, in order that he may have the opportunity of hearing the various points of view expressed by different teachers, and of asking questions as to the working of the methods discussed.

Under the careful supervision of practical teachers, the average student-teacher should well maintain the reputation of our English primary schools for thoroughness. But are we making the most of our student-teachers?

TALES FOR THE STORY HOUR.

THE STORY OF THE BASKET.

A Chinese Fairy Tale.

BY MARIE BAYNE.

THE Mandarin Ching-Ting sat in his shaded room, and he sighed as he sipped his tea.

It seemed strange that he should sigh when all around him was so pleasant. The chair on which he sat was made of polished black wood, his tea-table was carved and gilded, his tea-cup thin and fine as an egg-shell. His very glass lamp-shades were hung with silken tassels; why, then, should Ching-Ting sigh?

I will tell you. That morning a traveller had visited the Mandarin, and told him strange tales of a basket in a high-walled garden, and how, every now and again, it rose up through the air.

The traveller said, moreover, that once upon a time *he* had gone up in that basket and tasted great happiness, but that he dare not reveal what he had seen and heard. After this he bowed to the Mandarin. Seven times he bowed, with his clenched fists to his brow, and went away.

So now you see why it was that Ching-Ting sighed. He wished to know the secret of the high-walled garden, and at length he made up his mind to discover it or die.

Therefore he donned his tunic with the peacock embroidered upon it, put his bamboo hat upon his head, and, carrying a neat little blue-and-gold fan, set out on his quest.

Of course, he rode in a palanquin. For hours his four servants carried their master up hill and down dale. Ching-Ting told them which way to take, as the traveller had directed him; and by-and-by, sure enough, they came to the high-walled garden.

It was now dark night. Bidding his servants wait, Ching-Ting stepped from the palanquin and disappeared through a door in the wall.

It shut with a clang, and he was left alone. Peering around he saw in the midst of the garden a tall pagoda, and from its topmost roof dangled a rope attached to a basket.

The basket lay half-hid among the reeds and grass. It was just big enough to hold a man; and, without more ado, the Mandarin stepped into it. No sooner was he seated than the basket went whirling upwards, and in less than five minutes he found himself among the clouds.

The earth beneath seemed no larger than the button on his hat, while the stars were big as moons. As for the moon, he dared not look at her—she shone so near and bright.

Ching-Ting gave himself up for lost. "The gods are angry," thought he, "because I have come into their garden" (for, as every one knows, a pagoda is a temple of the gods). But just at that moment the basket stood still; and, lo! he found himself in another garden, thrice as lovely as the last!

Very quickly the Mandarin scrambled out, and as soon as he had left it the basket faded away.

Ching-Ting felt so tired that he lay down beneath an orange tree. Soon he fell asleep, and when he awoke he was no longer alone. A little way off he espied a group of maidens, and one among them who seemed to be their queen.

This lady had feet like the golden lily, and her hair was black as ebony. Her garments were of the finest silk, and the dragon embroidered upon them proved her of royal birth. In her hair were combs of bright birds' feathers, all set with gold and gleaming like a thousand gems.

At sight of this beauty the Mandarin's heart melted within him. Although the peacock on his breast and the button on his hat proclaimed his celestial rank, yet all at once he was filled with humility, and dared not approach.

How great then was his surprise when, glancing around her, the queen said to her maidens, "Something tells me we have a stranger in our midst. Go, search for him, and find him."

Whereupon some stout serving-women appeared, and took the pretty maidens on their backs (for no lady in China dreams of walking on her lily feet!) In this fashion they searched for the Mandarin, till at length they found him, and led him with laughter to the queen.

So soon as she beheld him the queen seemed strangely pleased. She bade Ching-Ting sit by her side underneath a flowered-silk umbrella, and heard from him of his perilous adventure in the basket. "Yet, believe me, Daughter of the Sun," ended the Mandarin, "I would face that journey again for a like reward!"

This speech seemed to please the queen still more, and her almond-shaped eyes grew soft; whereupon the Mandarin, carried away by love, besought her, then and there, to be his wife.

But now she sighed. "Nay, sir," she answered, "I cannot marry you to-day. To-morrow—we shall see!"

She then bade her servants spread a feast for their guest, though Ching-Ting vowed that, till she married him, he would neither eat nor drink.

Yet, when he saw all the dainties of the table spread before him—fairy rice, radish cakes, pickled fir-tree cones, sliced lily bulbs, etc.—he forgot his vow, and ate and drank with a will.

Afterwards he slept; and when he awoke, it was a new day. Again he made love to the queen, and begged her to be his wife; but now she frowned, and her almond-shaped eyes were stern.

"Sir," she said, "I fear you love a radish cake as much, or even more, than you love me." So saying, she fluttered her tiny fan; and, to the Mandarin's dismay, he found himself in the hateful basket, going down, down, down to the earth again.

It landed him with a dump and a bump on the ground. When he got to the gate, his servants had gone home, having given him up for lost. So the Mandarin Ching-Ting had to walk all the way back in the dust, blaming himself to think that, for the sake of a meal, he had spoiled such good fortune.

Again and again he visited the high-walled garden; but, though he sat in the basket for hours at a time, it refused to move. Therefore the Mandarin Ching-Ting fell into very low spirits; not even his dear sister, Lu-Lu-Te, could cheer him; and at length it was feared he was going to die.

Now Lu-Lu-Te had heard from him the story of the basket, and how he was pining for love of the queen; and so she resolved to go and plead for him.

One night, when it was dark, she too ordered a palanquin, and bribed four servants to take her to the high-walled garden.

When she got there she found the basket just as Ching-Ting had described. Brave Lu-Lu-Te stepped into it, though her heart was beating fast; and, behold! it went swinging upwards to the sky!

She saw the earth small as a mandarin's button; she saw the stars big as little moons; and at length the basket halted in the lovely garden.

She, too, crouched beneath the orange tree, and heard the queen say to her maidens, "Something tells me we have a stranger in our midst!" Then they came and found her, and led her to the queen, crying, "Lo! it is a woman!"

The queen eyed Lu-Lu-Te very sternly, and bade her tell why she came; whereupon Lu-Lu-Te told the story of Ching-Ting, her brother, and how he was pining away for love of the queen.

On hearing this the queen's almond-shaped eyes grew sad. "Blame me not, maiden," she said. "Were I free I would marry him to-night."

Then she explained that she was under a spell. "I am the Queen of Cochin-China," she said. "The wizard Fuam-Fum rules my kingdom for me until I marry; this was my father's will. But, to keep his power, Fuam-Fum wove a spell upon me. It is, that I live unwed in this dream garden till a lover comes in the basket and goes from me fasting. Many have come; but none, alas! could resist the feasts that I must spread—not even your celestial brother," she ended sadly.

Then Ching-Ting's sister begged that she might speak with the enchanter Fuam-Fum; and so beautiful was she that, so soon as he saw her, he fell in love with her.

"On one condition," said Fuam-Fum, "will I remove this spell—and that is, that you marry me."

Now, the enchanter Fuam-Fum was a handsome man, with the longest black beard in China. Lu-Lu-Te consented to be his wife; whereupon he sent a basket to fetch the love-sick Ching-Ting. The Mandarin was so weak that he could barely travel; but, when he saw his dear queen, he got well at once.

They all four came back to earth, and were married next day. Each of the brides wore scarlet robes, and their presents were packed in scarlet boxes. Everything at the wedding was red for good luck, and good luck followed.

Ching-Ting was made King of Cochin-China, and Fuam-Fum became his prime minister. The wizard, for love of his beautiful wife, gave up his enchantments—and that must be why no more has been heard of the basket!

THE LAND OF MAKE-BELIEVE.

WE recently spent a pleasant Saturday afternoon over a good fire, with a box of chocolates and a bulky volume from Gamage's. The occasion was an annual one, and the object was the choosing of certain articles which are to be named to Santa Claus, who will then pay his visit to the great toy store, and spend more or less, according to the nature of the parental report as to conduct.

It was not an easy task to choose among the almost bewildering variety; but we did not wish it to be easy, for the game was as interesting and exciting as the enjoyment of Santa Claus's benevolence is sure to be. Our method was to make a provisional list, and our first attempt may interest or even assist some of our readers, who will receive this copy of the *Practical Teacher* just in the nick of time for immediate action before the lists of Santa Claus are finally made up.

The Potter's Wheel.—Clean, ingenious, and providing interesting occupation when seniors are snoozing.

The Wood-Turner's Lathe.—"Amusement and true knowledge hand-in-hand." A little dangerous, perhaps, but all the better for that.

The Mysterious Wigwam.—A "surprise target" complete, with pistol and harmless arrows. The target is made of wood and finished in bright colours. As soon as the centre is hit properly, two Indian chiefs appear in front of the wigwam. A toy that would have delighted R. L. Stevenson. Need we say more?

The Game of Fox-hunting.—A complete "run," with all the usual incidents and capability for many more.

The Missionary Journeys of St. Paul.—Added to our list in view of the fact than Christmas Day falls on a Sunday.

A Trip to the Continent.—Rather severe in title, but really entertaining. The implied "instruction" can be readily avoided.

The Piggeries.—An excellent party game, consisting of pigs racing desperately to a well.

Puff Football.—A table (the home kind will do), two pairs of small bellows, a celluloid ball, and two goals.

Meccano.—Last, but not least, the famous boxes from which even the small boy or girl can make, under instructions, cranes, windmills, fire-escapes, Tower Bridge, Eiffel Tower, wheels, trucks, wagons, etc. Must be seen and handled to be appreciated.

Such was the uninfluenced selection of a small boy of mechanical turn who has not an unlimited call upon Santa Claus's exchequer. He passed over many other good seconds, engines, trains, fire-escapes—of all kinds, conditions, and prices. The wonderful aeroplanes held him fascinated, as well as the complete apparatus for wireless telegraphy, which ought at least to find a place

in the equipment of every school. The fitted battleships were things to dream of, and a crank or switch had more intrinsic beauty than the rainbow. If Messrs.

"The Fairey" High-Flying Monoplane.

Gamage's list has a fault, it is too full and comprehensive. It represents capital, enterprise, almost inhuman ingenuity, and a determination to dispel dullness which is worthy of a rich reward.

THE HOUSE SYSTEM IN DAY SCHOOLS.

BY S. A. RICHARDS, B.A.

THOSE who have had experience of both boarding schools and day schools know how much more difficult it is in the latter to arouse and sustain the *esprit de corps* necessary to make games and other out-of-school interests a success. It is always to the boarders that one turns for support in any scheme which involves a little self-sacrifice, a little extra grit. The best players in the cricket or football eleven are almost sure to be boarders; the cadet corps must look to the boarders for its recruits, and so on. It is not surprising that this should be so. The day boys have numerous interests outside their school life; the boarders have none. Support of school institutions involves the sacrifice of leisure for the day boy; it probably deprives him of other pleasures. For the boarder it is no sacrifice at all; the more school activities in which he is called to share the better. Without them his life would be dull indeed.

Yet no one would seriously contend that home interests can take the place of school interests for the day boy. Probably he needs the discipline of school games, the training involved in corporate enterprise, far more than the boarder. Far be it from me to belittle the value of home life and its influence upon a boy, but we schoolmasters again and again have forced upon our attention the fact that this influence, even with the best intentions on the part of parents, is not all for the boy's good. People talk lightly of "spoiling" children, but tragedy of a very real kind lurks behind the phrase. I have seen many instances of boys who were idle, selfish, priggish, ill-mannered, and ill-disposed as day boys, but who have become transformed into useful members of society after a few terms as boarders. They have come to learn that they are members of a society which has claims upon them; intercourse of a closer kind with their schoolfellows has rubbed the corners off. Schoolboy methods are primitive, but certainly have their educational value. These boys, while they lived at home, were spoilt children. After a year's separation from their indulgent mothers one finds them taking a leading part in school games, supporting school institutions generally, and finding by daily experience that a spice of altruism makes for increased happiness. From being discontented "slackers" they have become happy and useful members of a body whose solidarity they have come to realise.

The moral of all this is not that the day school should give way to the boarding school. Even if that were possible, it does not follow that it would be desirable. There is, as usual, another side to the question, and home life and home influence are certainly a valuable factor in a boy's education. But this influence needs to be supplemented, guided, even checked. If the day school concerns itself solely with the business of class teaching, it is thereby abandoning a sphere of usefulness into which it is its duty and privilege to enter. If a boy gets from his school life nothing but proficiency in the subjects taught in class—valuable though it be—he has missed a great deal of what he has a right to claim. Unselfishness, honesty, manliness, the power of influencing his fellows for their good, the sense of responsibility—all these he should gain in some measure at his school. It should be regarded not only as a seat of learning, but as a microcosm, a little model of that society of which he is later on to become a member, and for which his school life is to fit him.

How, then, is this end to be attained? In a school to which boys come from homes situated, many of them at a considerable distance, where there is little time for anything but the regular routine, it is difficult. But a good deal may be done, and the purpose of this article is to show what has been done in this direction in one case at least.

To begin with, the school was divided into six "houses," so called for want of a better name, though the house exists in the imagination only. This classification superseded an older one of a territorial nature, under which each boy was enrolled in one of four divisions—north, south, east, west—according to the situation of his home. This was found to have many disadvantages, the chief being the impossibility of keeping the different divisions anything like equal in respect of numbers. The northern division grew steadily, while the others dwindled owing to changes in the character of the neighbourhood. The state of things was often summed up in a verse from the Psalms: "Promotion cometh neither from the east nor from the west, nor yet from the south." Competition between the divisions became impossible. Moreover, in a school of four hundred boys, four divisions were not sufficient. The number was therefore enlarged to six, and the boys of the school distributed equally among these six "houses" without reference to domicile, care being taken, in the first distribution, to have an equal number of senior and of junior boys in each house. Six members of the staff were appointed house masters, and the "houses" called by their names. A new school cap was introduced, bearing, in addition to the arms of the school, the initial letter of the house to which its wearer belonged. The school battalion was reorganised, and now consists of six companies, each comprising the members of one

CLOUGH'S CORRESPONDENCE COLLEGE,

TEMPLE CHAMBERS, LONDON, E.C.

The Oldest and Most Successful Correspondence College.

***** CLOUGH'S CLASSES are the LEADING CLASSES. Students should make certain of securing the best possible advice and assistance in preparing for their Examinations by joining Clough's Classes, which are famous for Remarkable Records of Success.**

Full particulars of the following highly successful Classes may be obtained from the Secretary:—

PREL. CERT., December 1911—March 1912.
New Class commences January 5, 1911.

CERTIFICATE, December 1911. December 1912.
The New Class for December 1912 commences January 4, 1911.

MATRICULATION, June 1911, Sept. 1911, Jan. 1912.

OXFORD SENIOR LOCAL, March 1911, July 1911.

CAMBRIDGE SENIOR LOCAL, July 1911, Dec. 1911.

A.C.P., August 1911, January 1912.

L.L.A., May 1911, May 1912.

HIGHER FROEBEL, July 1911.

Valuable Prizes awarded to specially successful Students.

For Prospectus, Syllabus, Plan, Terms, and full particulars of any of CLOUGH'S CLASSES, write to—

The Secretary, CLOUGH'S CORRESPONDENCE COLLEGE, Temple Chambers, London, E.C.

of the six houses. In the school hall are six notice boards, one for each house, which the house masters make use of for conveying information to the boys under their charge. At the beginning of each term the new boys are distributed as fairly as possible, due regard being paid to their age and the number of boys already remaining in each house. Brothers are placed together. Each house master keeps a register in which he enters the names of his boys and such particulars as date of birth and entry at the school, form, address, father's occupation, and previous school. From time to time additions are made, such as promotion, distinctions won in school or in sports, date of leaving, and any further information available that seems likely to be useful. The entries in this book thus furnish a complete record of a boy's career. House meetings are held from time to time, and the younger boys go once a week to their house master's room as part of the ordinary routine. Boys who are brought back on Wednesday afternoon for detention are required to report themselves afterwards to their house master. Thus from the time when a boy enters this school until he leaves he has one master with whom he is brought into close contact, and to whom he can go in times of difficulty; whom, in fact, he comes to look upon as his friend rather than his schoolmaster. He may move from form to form, from master to master, but his house master does not change. Parents are invited to consult the house masters in matters affecting their boys, and thus join in co-operation with them.

In each house six of the elder boys are appointed house prefects, and the members of the house are assigned to their care in equal numbers, so that the organisation is fairly complete. It is sufficient for a master to call his prefects together and give them his orders, which each then conveys to the boys under his charge. One of these prefects ranks as head of the house.

Each house is divided into two divisions, senior and junior, the age limit being thirteen and a half years at the beginning of each term. Each division has its cricket and football eleven, with captain and vice-captain elected by the members of the division. The house prefects are appointed by the house master. Matches are arranged between the houses—junior and senior divisions—in cricket, football, swimming, shooting, and gymnastics. The divisions form a senior and junior league, which, in cricket and football, compete for trophies which are presented at the end of the season. Marks are assigned in all competitions, and at the end of the year the champion house has its name inscribed upon a shield in the school theatre. The house masters, with the head master, form a sort of privy council which meets to discuss matters of various kinds bearing upon the welfare of the school as a whole.

Such, in bare outline, are some of the salient features of the system. The keenness in sports which the inter-house competitions induce would alone make it worth while; as a means of school organisation it is invaluable. By means of his prefects a house master can get together his boys, convey orders to them, find out their opinion on various matters. Boys are no longer allowed to drift; there is some one who makes it his business to know each one and to get into as close contact with him as possible. The spirit of school patriotism is fostered; pride in the reputation of his house is developed naturally and easily even in the younger boys. In fact, the house system seems to supply just what was too often lacking in the life of a large day school.

THE RURAL TEACHERS' CONFERENCE.

BY ALLEN CROFT.

The Latest Conference.

JUST about the day of publication of the January *Practical Teacher* a somewhat unique educational gathering will be witnessed at the commodious Holborn Restaurant—namely, a Rural Teachers' Conference. In addition to about a hundred representatives selected by the various County Associations, there will assemble the Executive of the Union, and the "teacher members" of the Education Committees of all the administrative counties; and, without being unduly optimistic concerning the ultimate beneficial results of the Congress, one may anticipate a series of interesting discussions on topics very vital to the professional existence of the country teachers.

There will be three sessions—a "private session," held on the afternoon of Tuesday, December 27, and two public sessions on the following day, when it is hoped that representatives of the press will assemble in force, and give the proceedings a fair share of prominence. The first question to be considered is, "Staffing: the Substitution of Certificated Teachers for Supplementary and Uncertificated Teachers in Rural Schools;" and discussion will probably centre round the points—(1.) Is the time opportune for such a change? (2.) What would be the effect on rural schools in (*a*) reducing the number of members of the teaching staff, and (*b*) reducing salaries all round? "Staffing" disposed of, the members will deal with "Union Organisation and Rural Teachers," and under this heading I expect a lively debate on the best means of focussing the opinions of rural school teachers on matters affecting their particular interests. It is almost certain that suggestions will be made for the establishment of a Standing Committee, on the lines of the very successful Secondary Teachers' Committee recently instituted by the Executive. The adoption of a motion on rural education for the Aberystwith Conference, and "The Isolation of Rural Teachers," will provide ample material for the remainder of the "private session."

With the "Rurals."

The first public session has been arranged to begin at 10 a.m. on Wednesday, December 28, and continue until 12.30 p.m. "School Attendance," "Curricula: Practical Training," and "Evening and Continuation Schools in Rural Districts," are all somewhat familiar topics; but in the hands of experts should prove interesting enough. The Conference will be asked to press for the attendance of children until the age of fourteen years, and the immediate abolition of partial exemption. The best debate will probably be evoked by "Practical Training," and questions such as (1) "Is more practical training advisable for boys and girls in rural schools?" (2) "Is it possible? what are the necessary conditions? to what extent should it go?" will furnish plenty of opportunity for expressions of diverse opinion. A pioneer in this particular work is my former valued colleague on the Executive, M. R. N. Lewis; and I sincerely hope he will relate his experiences at Langworth.

In the afternoon of the same day (2.30–4.30 p.m.),

JUST PUBLISHED. **JUST PUBLISHED.**

THE FIRST COMPLETE SCOTTISH ANTHOLOGY.

THE EDINBURGH BOOK OF SCOTTISH VERSE.

Selected and Edited by W. MACNEILE DIXON, Litt.D.,
Professor of English Literature in the University of Glasgow.

Large Crown 8vo, Cloth Gilt, **7s. 6d. net.** Special India Paper Edition, **10s. 6d. net.**

"It is curious, when so many are at the game, that we should be able to welcome as something acceptable and new an anthology of poetry written by Scottish poets."—*The Manchester Guardian.*

"The book is one of the most desirable and welcome of Christmas visitors of its kind."—*The Scotsman.*

NOW READY. **NEW AND CHEAPER RE-ISSUE.**

A GIFT BOOK FOR THE NURSERY AND SCHOOLROOM.
ILLUSTRATED BY WALTER CRANE.

THE GOLDEN PRIMER.

64 pages, including 32 Full-page Illustrations in Colour. 9 by 6½ inches. Handsomely Bound in Cloth.
2s. 6d. net.

Specimen Pages of both books may be had on application.

MEIKLEJOHN AND HOLDEN, 11 Paternoster Square, LONDON.

This illustrates a Lady Teacher's "SWAN"

THE ONLY PERFECT PEN for LADIES' USE
EASY TO BUY. EASY TO CARRY.
EASY TO FILL. EASY TO WRITE WITH.

May be carried on the Châtelaine, Belt, or Brea-t Pin without fear of loss or of soiling the dress. The mountings are handsomely chased, highly finished, and in excellent taste.

HAS NO COMPLICATED OR "FAD" MECHANISM TO GET OUT OF ORDER.

Rolled Gold or Silver, 21s. upwards.

Sold by all High-class Stationers & Jewellers.
CATALOGUE FREE.

Other "SWANS," 10s. 6d. upwards.

Use "SWAN" INK, 6d. & 1s., with Filler.

MABIE, TODD & CO.,
79 & 80 High Holborn, LONDON, W.C.

BRANCHES—93 Cheapside, E.C.; 96A Regent Street, W.; 3 Exchange Street, Manchester; and at Brussels, Paris, and New York.

The Best of Pianos on the Best of Terms.

THAT'S what you can depend upon when you order from us. Our 30 years' experience enables us to buy the best instruments on incomparably advantageous terms, and, as we have no expensive showrooms to keep up, we can sell for less profit than other houses. Our terms on the Deferred Payment System are actually lower than those of other dealers for cash down!

Proof of our Claims

is furnished by testimonials from Dr. Macnamara, M.P., Sir J. H. Yoxall, M.P., over thirty of H.M. Inspectors, and many thousands of teachers in all parts.

A month's free trial of any of our instruments without any payment. Free exchange or return. Carriage paid. Ten Years' Warranty.

Write now for our Catalogue. It is sent free, and we do not ask for its return.

The Educational Musical Instrument Co.
(Dept. 23),
18 and 19 Highbury Place, London, N.

"Finance," "Methods of Inspection," "Examination of Scholars," and "Co-operation of Managers" have been selected for consideration by the Executive, and the veriest glutton cannot complain of the *amount* of work set down. "Co-operation of Managers"—the development of duties, and extension of their sphere of activity—is the novelty of the Conference, and the resolution to be submitted runs thus: "In the opinion of this Conference, the co-operation of school managers may well be invited, and their activities extended in the direction of securing the attendance at elementary and continuation schools of healthy children from healthy homes." I am delighted to think that we may expect the attendance and assistance of Messrs Beaton, Gale, Lewis, and Muscott, all former members of the Executive, and most worthy protagonists of the rural teachers' cause.

SCRIPTURE LESSONS FOR YOUNG CHILDREN.

THE STORY OF JESUS—*Continued.*

BY MRS. FLORENCE KIRK.

3. The Ministry of Jesus: the Cleansing of the Temple.

JESUS decided to begin His public ministry at Capernaum, a thriving town on the western shore of the Sea of Galilee. He made it His headquarters, and often returned there from His various journeys to other parts of the country. (Reference should be made to the sketch map and the position of Capernaum indicated. A short time should be spent in recapitulating the various geographical features—for example, the lake itself through which the Jordan flowed, 14 miles long and 6 miles broad, almost completely shut in by mountains; its clear waters, sometimes agitated by violent storms, and abounding in fish of all kinds, and traversed every day by hosts of fishing-boats.)

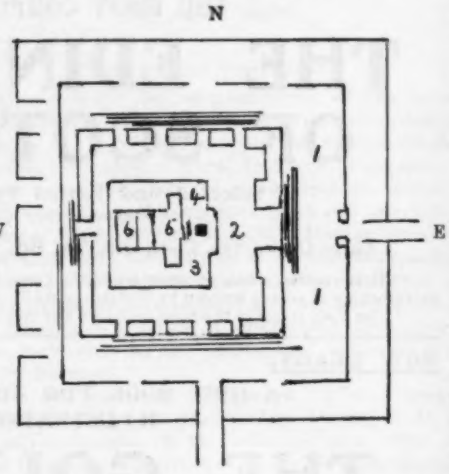
Capernaum was on the commercial highway that led from Syria to the Mediterranean Sea and Egypt, and was a centre for the caravans constantly passing through the country.

After leaving Cana, where the first miracle was performed, Jesus went with His disciples to Capernaum; but, finding that the Feast of the Passover was at hand, He decided to celebrate it at the temple, so He and His disciples turned their steps southward to Jerusalem. Here the following passage should be read from the Bible (John ii. 13–16):—

"And the Jews' passover was at hand, and Jesus went up to Jerusalem, and found in the temple those that sold oxen and sheep and doves, and the changers of money sitting: and when he had made a scourge of small cords, he drove them all out of the temple, and the sheep, and the oxen; and poured out the changers' money, and overthrew the tables; and said unto them that sold doves, Take these things hence; make not my Father's house an house of merchandise."

Suggestions to the Teacher.—It is advisable at this stage to enter fully into a description of the temple and the religious services of the Jews. Time should be spent in enabling the children to understand what kind of building the temple was—a mere verbal description will not suffice, as the building was so different from our modern churches. The following suggestions are offered:—

1. A rough plan of the building, drawn on the floor,



1. Court of the Gentiles.
2. Court of the Women.
3. Court of the Priests.
4. Court of the Israelites.
5. The Sanctuary.
6. The Holy of Holies.

■ The Altar.

and a large sketch on brown paper, kept for future reference, as per sketch.

2. A model, in clay or plasticine, of the hill with the temple upon it, and the bridge connecting it with the city.

3. A hill of sand, and the various buildings represented with bricks. (The bricks of Froebel's Gift VI. are very useful for representing the columns of the inner courts.)

The Cleansing of the Temple.
(From Nelson's Bible Wall-Pictures.)

THOUSANDS OF CHILDREN ARE READING

CASSELL'S SIXPENNY READERS

A charming selection of well-edited stories of an interesting and stimulating character, carefully graduated for the Standards. They are beautifully printed on good paper, and illustrated in colour and black and white,

extra strong binding, thread-stitched. Price 6d. each.

For STANDARD 0.

The Child's Pictorial Reader.

For STANDARD I.

Rey-nard the Fox. (In words of one syllable.)
Robinson Crusoe. (In words of one syllable.)
The Swiss Family Robinson. (In words of one syllable.)
Æsop's Fables. (In words of one syllable.)
Seventeen Cats.
Fairy Tales for Little Folks. (Book I.)

For STANDARD II.

Cassell's New Fairy Book.
Fairy Tales for Little Folks. (Book II.)
The Book of Pets.

For STANDARD III.

Fairy Tales in Other Lands.
Stories from Grimm's Fairy Tales.
Ups and Downs of a Donkey's Life.

For STANDARD IV.

Stories from Andersen's Fairy Tales.
Mac: A Dog's True Story.
Bunyan's Pilgrim's Progress.

For STANDARD V.

Readings from Dickens.
School and Garden.
Stories of King Arthur.
The Adventures of an Exmoor Pony.

For STANDARDS VI. and VII.

Stories from Ancient Greece. By Prof. A. J. CHURCH.
Stories from Ancient Rome. By Prof. A. J. CHURCH.
The Greek Heroes. Stories translated from NIEBUHR, with additions.

BIBLE STORY BOOKS.

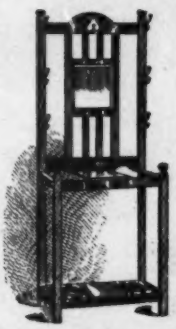
The Child's Bible Narrative.
Book 1. **Old Testament Narrative** (from the Creation to Death of Moses).
Book 2. **Old Testament Narrative** (from the Conquest of Canaan onward).
Book 3. **New Testament Narrative.**

Head Teachers are invited to make application for Specimen Copies, with a view to adoption.

CASSELL & CO., LTD., La Belle Sauvage, LONDON, E.C.

Make Home Complete

WHETHER you are newly furnishing or just want one or two items "to make home complete," you will save money by ordering from the famous "Morton" Catalogue. It represents a 30-years' knowledge of teachers' needs. Easy terms if desired. Look at the specimen bargains here shown.



Handsome Hall Stand in Oak.

2 feet wide, with bevelled mirror, only 19s. 11d., or 3s. monthly.

The "Study" Solid Oak Roll-Top Desk.

Width, 48 inches; Depth, 27 inches; Height, 47 inches. Automatic locking drawers, satin walnut pigeon-holes and interior fitments. Best English make.

£5, 5s. cash, or 10 monthly payments of 10s. 6d., or 24 of 5s.

All Goods over 10s. in value carriage paid and returnable at our expense in three days if not satisfactory. Our large Catalogue is sent free, and we do not ask for its return. Write for it now.

MORTON BROTHERS & CO.,
Dept. 22, 18 and 19 Highbury Place, LONDON, N.

EDUCATION AUTHORITIES' DIRECTORY, 1910-11.

Contains, amongst a mass of valuable information, detailed particulars of

The Board of Education.
The Government School Inspectorate.
The L.C.C. Education Department.
The County, and Borough, and Urban District Education Committees of England and Wales.
List of Training Colleges.
List of Pupil Teachers' Centres.
The Welsh Central Board.
Education Societies of the United Kingdom.
Information regarding Universities, Polytechnics, & Technical Institutions.
Alphabetical List of Leading Educationists.
List of Secondary Schools, with Head Teachers, under the sole or partial control of the Education Committees.
Medical Officers, Assistant Medical Officers, Nurses.
Other Valuable Information.

Octavo, bound in stout cloth, 3/6 net per copy. By post, 4d. per copy extra.

LONDON: Office of
"The School Government Chronicle and Education Authorities' Gazette,"
21 NEW BRIDGE STREET, E.C.
Telephone: Central 10084. MANCHESTER: 46A Market Street.

RYDE'S CLASSES

ORAL AND CORRESPONDENCE.

CERTIFICATE—"Preliminary" and "Final."
OXFORD SENIOR LOCAL.
CAMBRIDGE SENIOR LOCAL.
A.C.P. **L.L.A.**

Full particulars from

Mr. PERCY W. RYDE,
79 GRESHAM STREET, LONDON, E.C.

4. Picture postcards (1d.) and photographs of an elaborated model by J. M. Tenz can be obtained, and these give an excellent representation.

The history of the building of the temple should be told—for example, how David, when he had subdued his enemies, gathered from all lands materials to build a house in which his people could worship God, and how this work was entrusted to David's son, Solomon, in the presence of the chief men of Israel (see 1 Chron. xxviii.). Portions of this chapter may be read to the children—verses 1, 2, 3, 5, 6, 10, 11, 20. Solomon did his work so well that the temple was renowned all over the world for its grandeur and magnificence, and brought people from all lands to see it. After standing for over 400 years, the temple was destroyed by Nebuchadnezzar, king of Babylon. It was twice rebuilt, the second time on a magnificent scale by Herod the Great. He enclosed Mount Moriah with four walls, in the direction of north, south, east, and west. The ground on which the temple buildings stood rose in terraces, so that one court lay above another, and the sanctuary, or real temple, was the highest of all, and could be seen from all parts of the city. Its front was covered with gold plates, and the whole temple being built of white marble, it looked like a mountain of snow to persons at a distance.

Inside the wall, along each side, ran cloisters, the one on the south being the most elaborate. The outermost wall had several gates, the most beautiful one being on the east side, and known as the Gate of Damascus, or the Beautiful Gate.

The court inside the cloisters was paved with variegated marble, and was called the Court of the Gentiles. This court was open to all, and contained houses for Levites, stalls for animals for sacrifice—oxen, sheep, and doves; booths of the money-changers for the endless visitors from other lands bringing gifts to the sanctuary.

In the interior of this vast court was a huge platform, ascended by nine flights of steps, on which stood the holy house itself, with courts for the priests and the people. The first court was known as the Court of the Women, because women were not allowed to go any further. Here stood trumpet-shaped boxes for offerings for the temple-service, and here was the place where people commonly worshipped.

More steps led up to the Court of the Israelites, and a few more to the Court of the Priests, which people might not enter. It was surrounded by groups of chambers—for example, an assembly room and a dining-room for the priests; one for preparing the shewbread, another for storing wood or salt for the altar, another for the skins of the animals, cloakrooms for the priestly vestments, and chambers for the high priest.

In front of the holy house was the altar, where three fires were kept burning, and close by was a heap of salt, from which the sacrifice was salted. The holy house itself consisted of three parts:—

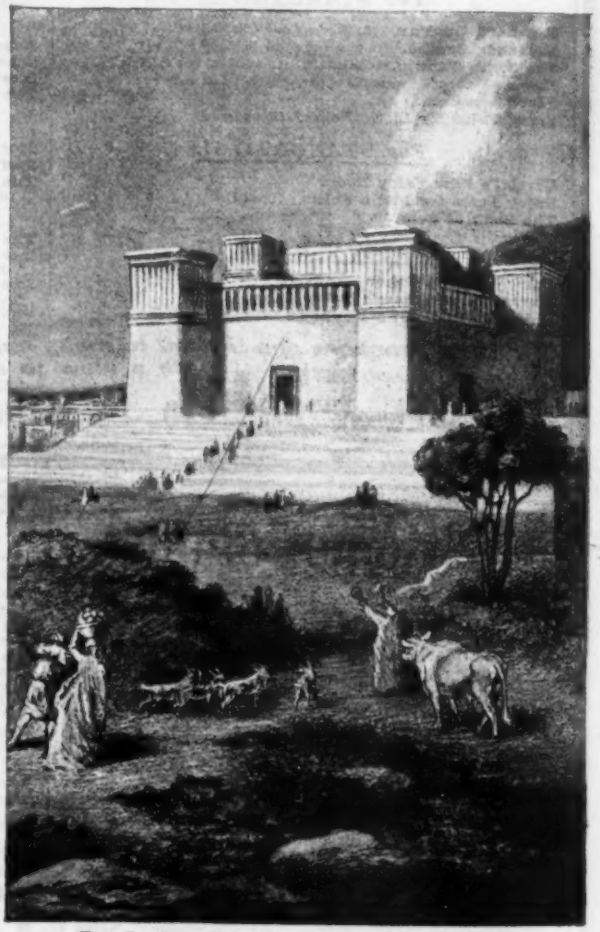
1. A splendid porch.

2. The holy place, where stood the golden lamp-stand, the shewbread table, and the incense altar.

3. Holy of Holies. This was hidden by a curtain known as the *veil*, and was entered only once a year by the high priest during the most solemn rite of Jewish worship. This place contained nothing, for the Jews believed that God is a Spirit. "I dwell in the high and holy place, and with him also that is of a contrite and humble spirit."

During His visits to Jerusalem Jesus visited the temple every day, and was usually found in the outer court, where He was sure of an audience, and where He delivered many of His addresses. One part where He often preached was called the treasury, and contained chests or boxes for freewill offerings towards the service of wood or salt, etc.

The temple was held in very great reverence by the Jews, and they were very angry with any one who made slighting remarks about it. They always offered their prayers with their faces turned towards it.



THE REPUTED FORM OF THE TEMPLE OF SOLOMON.

This reverence will explain the anger which Jesus felt on seeing the crowd of people turning it into a market instead of a place of worship. His righteous indignation, and the guilty consciences of those who were degrading it, accomplished the clearing of it without resorting to physical violence, though it is evident Jesus thought this might be necessary.

Through the archway in the picture can be seen the central part of the temple known as the Sanctuary.

MESSRS. BELL'S BOOKS

PUBLIC SCHOOL ARITHMETIC.

By W. M. BAKER, M.A., and A. A. BOURNE, M.A.

Crown 8vo, **3s. 6d.** With Answers, **4s. 6d.**

"This is in every way an admirable text-book, which ought to enhance the reputation of its well-known writers. The explanations of the various processes are given in language that will be intelligible to the average pupil, and he is encouraged at all stages to write out the reasons for his various steps. Probably, however, the chief merit of the book lies in its examples, which, besides being exceptionally numerous, have evidently been selected with unusual care. The gradation of the various sets is as nearly perfect as possible, and even the most elaborate seem to work out neatly."—*Educational News.*

BY THE SAME AUTHORS.

THE STUDENT'S ARITHMETIC.

Crown 8vo. Price **2s. 6d.**, with or without Answers.

This Arithmetic aims at meeting the requirements of those Teachers who prefer not to put a text-book which contains numerous work-out examples and full explanations into the hands of their pupils. It is based on the "**Public School Arithmetic.**" and contains all of the examples in that book, with a minimum of bookwork.

BELL'S HISTORY READERS

On the Concentric Method.

NOW READY. COMPLETING THE SERIES.

Book III.—For Senior Classes.

A HISTORY OF ENGLAND. By A. MCKILLIAM, M.A. Crown 8vo. With numerous Illustrations. Price **2s.**

PREVIOUSLY PUBLISHED.

Book I.—For Junior Classes.

FIRST LESSONS IN ENGLISH HISTORY. Crown 8vo. 102 pp., with numerous Illustrations. Price **10d.**

Book II.—For Middle Classes.

A JUNIOR HISTORY OF ENGLAND. By E. NIXON, Specialist in History, Ladies' College, Cheltenham. Cr. 8vo. 254 pp., with 66 Illustrations. Price **1s. 6d.**

THE YORK READERS.

Strongly bound in Artistic Cloth Covers. Illustrated in Colour and black and white.

PRIMER No. 1.	24 pages	3d.
PRIMER No. 2.	32 pages	4d.
INFANT READER.	64 pages	6d.
INTRODUCTORY READER (Standard 0).	96 pages	8d.
BOOK I. (for Standard I.).	126 pages	9d.
BOOK II. (for Standard II.).	160 pages	10d.
BOOK III. (for Standard III.).	192 pages	1s.
BOOK IV. (for Standard IV.).	232 pages	1s. 3d.

THE YORK POETRY BOOKS.

PART I. (for Lower Standards). **PART II.** (for Middle Standards). **PART III.** (for Upper Standards). **6d.** each; cloth, **8d.** each.

"A varied and extensive selection of good poems, well graduated, and full of interest to the children."—*Educational Times.*

JUST ISSUED. ***BOUND IN LIMP CLOTH.***

BELL'S SUPPLEMENTARY READERS

Crown 8vo. Price **6d.** net each.

This new Series of Continuous Readers contains many well-known Standard Books which have been adapted for School use by the method of excision only, the language of the original being in all cases left intact.

Full Detailed List on application.

London: G. BELL & SONS, Ltd.

Portugal Street, W.C.

Messrs. METHUEN'S NEW BOOKS FOR THE NEW TERM

BALLADS OF THE BRAVE: Poems of Chivalry, Enterprise, Courage, and Constancy. From the Earliest Times to the Present Day. By FREDERICK LANGBRIDGE, M.A., D.Litt., Canon of St. Munchin's, St. Mary's Cathedral, Limerick. Fourth and Revised Edition with Notes. Crown 8vo, **3s. 6d.**

A HISTORY OF ENGLAND FOR SCHOOLS. In Three Volumes. Vol. III. 1714 to Present Day. By ERNEST BOWYER, B.A., B.Sc. Crown 8vo, **2s. 6d.** [*New Historical Series.*

This volume has been written, on modern lines, expressly for upper forms of schools. In order to enable the young pupil to grasp the history of his country during the last two centuries as an intelligible whole, the economic side of England's history and the part she has played in international politics have been dealt with in greater detail than is usual in text-books written for schools.

A JUNIOR GERMAN GRAMMAR. By H. C. A. SECKLER, Senior German Master, Owen's School, E.C. Crown 8vo, **2s. 6d.** [*Junior School Books.*

This book is for the middle forms of schools, and meets the requirements of the Oxford and Cambridge Junior Local and the College of Preceptors Examinations. It consists of grammar and exercises, and a particular feature is the co-ordination of accidence and syntax. It aims throughout at training pupils to use their knowledge for composition.

A SYSTEMATIC GEOGRAPHY OF AMERICA. By G. W. WEBB, B.A. With 10 Maps and Diagrams. Crown 8vo, **1s.**

This is the fourth volume in the New Geographical Series, and is written on the same lines as the previous three volumes: "A Systematic Geography of the British Isles," "Europe," and "Asia."

A FIRST COURSE IN ENGLISH. By W. S. BEARD. Crown 8vo, **1s. 6d.** [*The Beginner's Books.*

This is a working class-book in English for the lower forms of Secondary Schools and pupils in Primary Schools. First, it provides a progressive course in analysis and elementary composition; the uses of words and their relation to each other in sentences. Second, it provides a text-book of the leading principles of grammar—accidence and elementary syntax—which will enable young pupils to apply these principles intelligently, step by step, to practical work in analysis and parsing.

STORIES FROM THE HISTORIES. Edited by E. M. WILMOT-BUXTON. With Maps. Crown 8vo, **1s. 6d.** each.

These volumes, by supplying a series of interesting stories, will help to remove the general complaint that English children grow up ignorant of the great events and characters in the history of other nations.

The first volumes are:—

STORIES FROM FRENCH HISTORY. By TAYLOR DYSON, M.A.
TALES FROM IRISH HISTORY. By ALICE BIRKHEAD, B.A.

STORIES FROM OLD ROMANCE. Edited by E. M. WILMOT-BUXTON, F.R.Hist. S., Author of "Makers of Europe," etc. Crown 8vo, **1s. 6d.** each.

These volumes will serve as an introduction to world literature, as well as form literary readers that will appeal to children between the ages of eight and twelve in all classes of schools. They will also be found suitable gift-books for all young lovers of stirring romance and tales of chivalry.

The first volumes are:—

STORIES FROM OLD ITALIAN ROMANCE. By SUSAN CUNNINGTON.
STORIES FROM OLD FRENCH ROMANCE. By E. M. WILMOT-BUXTON.

STORIES FROM THE GREAT WRITERS. Edited by E. M. WILMOT-BUXTON, F.R.Hist.S. Crown 8vo, **1s. 6d.** each.

In this series incidents have been selected from the works of the best writers and abridged or retold to make them appeal to children. It is hoped that these stories will kindle a love for the works of the best writers, and stimulate children to read, after school days, the originals and others by these authors. The first volumes are:—

STORIES FROM DICKENS. By JOYCE COBB.
STORIES FROM BUNYAN. By EDITH L. ELIAS.

A CONCISE HISTORY OF CHEMISTRY. By T. P. HILDITCH, B.Sc. (London), A.I.C., F.C.S., 1851 Exhibition Research Scholar in the University of London. Crown 8vo, **2s. 6d.**

Primarily intended as a help to chemical students, this book will also prove serviceable to general readers who may wish to have a concise outline of the development of chemistry.

PRELIMINARY PHYSIOLOGY. By WILLIAM NARRAMORE, F.L.S., M.R.San.Inst., Lecturer in Physiology, Hygiene, Biology, and Botany, Municipal Technical School, Liverpool. Crown 8vo. **3s. 6d.**

This work is adapted to meet the requirements of the Board of Education, the Oxford and Cambridge Locals (Senior), the College of Preceptors, Candidates for Matriculation, and the several examinations in Physiology held for students in Hygiene, Physical Culture, Cookery, for nurses in Probation, and students preparing for Law, Insurance, and Accountancy, where Physiology is now demanded. From the expository style and practical methods followed throughout, the work will be found well suited to private study as well as for class courses.

WRITE FOR COMPLETE EDUCATIONAL CATALOGUE TO

METHUEN & CO. LTD., 36 ESSEX ST., LONDON, W.C.

Words by R. HILLES.

CHRISTMASTIDE.

Music by F. H. SQUIRES, F.R.C.O.

CAROL FOR FOUR VOICES.

f Slowly.
Make we mer-ry in hall and bower; This time was born our Sa . . viour.
mp SOLO (TREBLE OR TENOR).
In this time God hath sent His own Son to be pres-ent, To dwell with us in ver - a - ment.
Andante religioso.
mp
FOUR VOICES.
mf
God is our Sa - viour. In this time that is be-fall, A Child was born in an ox stall; And af-ter He died
mf

A Specimen "Morton" Bargain: S620. Charming **Smoke Foxeline Fur Set**, as Illustrated. Only **50/-**, or **8/-** monthly.

Another:
The "Lonsdale" Tailor-made Costume, in Navy, Black, or Coloured Serge. **38/6**, or **7/-** monthly.

Fully described and illustrated in our Fashion Guide.

MORTON BROS. & CO.

18-19 Highbury Place, London, N.,
invite every Lady Teacher to
write for copies of their two

FASHION GUIDES, FREE.

One deals with Furs, the other with Costumes, etc. Both contain suggestions which every lady will value. All the goods appeal to cultivated taste. Patterns of materials are sent with the Costume Book. "Morton" prices show a great saving on shop charges, because of the economies of a large business, conducted by post, without establishment expenses.

Goods on Approval and Easy Terms to Teachers.

Write a postcard for the "Guides" *now*. You will be delighted with the contents.

Morton Bros. & Co.,
Dept. 19,
18-19 Highbury Place, London.

Morton-Style
FURS
and Costumes.

GIVE THE CHILDREN THE BEST

Our New List—sent Free on application—contains details of the Best and Newest Things for Teaching Geography on the New Lines—as well as other Subjects.

Every Practical Teacher should see

THE INVICTA TABLE BOOK

Graphic Representations of the Tables and Weights and Measures.

Mark your letter A956.

GEORGE PHILIP & SON, LTD.,
FLEET STREET, E.C.

DELICIOUS COFFEE

RED WHITE & BLUE

FOR BREAKFAST & AFTER DINNER.

In making, use less quantity, it being so much stronger than ordinary COFFEE.

NELSON'S LIBRARY. 7D. Net.

NEW VOLUMES.

When Valmond Came to Pontiac.
By Sir GILBERT PARKER. (*Ready Jan. 4.*)

Beaujeu. By H. C. BAILEY. (*Ready Jan. 18.*)

AT ALL BOOKSELLERS AND BOOKSTALLS.

ALL THE TREBLES.
f
for us all. God is our Sa - viour. In this time an an - gel bright Met three shep-herds up -
f
p legato.
FOUR VOICES.
pp
on a night. He bade them go a - non of right To God that is our Sa - viour. In this time
pp
pp
cres.
f
rall.
now pray well To Him that died for us on tree, On us all to have pi - tee. God is our Sa - viour.
cres.
f
rall.

An interesting Handwork Course can be worked out in connection with

MODELLING AND HISTORY.

The illustration represents a Costrel, or Pilgrim's Bottle, modelled in

HARBUTT'S PLASTICINE.

Send for Samples of Plasticine and Hints on Modelling to

Wm. HARBUTT, A.R.C.A.,
215 Bathampton, Bath.

THE SCHOOLMISTRESS

WEEKLY PRICE ONE PENNY. CONTAINS **HELPFUL ARTICLES ON ALL BRANCHES OF SCHOOL WORK.** WEEKLY PRICE ONE PENNY.

TEACHERS not already Subscribers should order from their Newsagent, or forward Postal Order or Halfpenny Stamps to "THE SCHOOLMISTRESS" NEWSPAPER CO., Ltd., 149 Fleet Street, E.C.

SUBSCRIPTIONS (Prepaid).

ONE SHILLING AND NINEPENCE for THREE MONTHS.
THREE SHILLINGS AND THREEPENCE for SIX MONTHS.
SIX SHILLINGS for TWELVE MONTHS.
— Post Free. —

The Best Paper for Pupil Teachers and all Mistresses.
Full Notes on Certificate Literature.

TELEGRAPHIC ADDRESS: "SCHOOLMISTRESS, LONDON." Address: **PUBLISHER, 149 Fleet Street, LONDON, E.C.**

Oxford University Press

THE EARLY EDUCATION OF CHILDREN.

By LAURA L. PLAISTED. With a chapter on the Medical Responsibilities of the School Teacher by A. L. OLMEROD. *Second Edition.* Crown 8vo. **4s. 6d.** net.

Education:—"Apart from its other and numerous merits, this book presents a useful compendium of up-to-date methods and suggestive material....To attempt to sum up in a few words the spirit of this delightful and helpful book can be but partially successful, though, perhaps, the following words give a useful clue to its sympathetic comprehension of children's needs: 'We must always direct rather than repress activity,' says the writer; 'let our watchword ever be "Do" and not "Don't"!'"

Manchester Guardian:—"The merits of the book are patent; its tone is sympathetic; it has been prepared with good judgment and great industry; the illustrative material is abundant; and it deserves wide circulation both among teachers and parents."

Aberdeen Free Press:—"The reader will soon find while she deals with a very old subject, she does it in such a thorough and interesting manner, and is so full of information on her subject, that she has certainly earned a claim to having contributed a most valuable and thorough chapter on the theory and practice of teaching little children and of training young teachers....An exhaustive index and a delightful series of illustrations add to the value of this book, which ought to be in the hands of every teacher of infants."

SCHOOL GARDENING.

By P. ELFORD and S. HEATON. Crown 8vo, illus. **2s.** net.

Garden:—"We advise all interested in school, or even amateur, gardening to get a copy of the book and utilise its information."

Spectator:—"We have no doubt of the valuable character of this volume. It is the work of experts, and it is full of useful information from end to end."

Guardian:—"A much-needed and carefully-prepared manual for those elementary school teachers whose schools are equipped with gardens for the use of the scholars. It can also be placed in the hands of the boys themselves, and will form an excellent reward book for boys leaving school....The book is not only a guide to practical work, but it is also a miniature encyclopædia of garden knowledge. It deserves to be very widely adopted."

A SCHOOL GARDEN NOTE-BOOK.

By the same authors. Crown 8vo. **9d.** net.

Select List of Educational Works, List of Books set for various Examinations, and Complete Catalogue (160 pages), post free.

London:
HENRY FROWDE, Oxford University Press, Amen Corner, E.C.

EVANS' ANTISEPTIC THROAT PASTILLES

FOR TEACHER'S THROAT.

ALL SCHOOL TEACHERS, SPEAKERS, SINGERS, etc., whose vocation so predisposes them to chronic inflammation and soreness of the Throat, will find these world-famous Throat Pastilles a perfect boon. Composed of ingredients suggested by an eminent Throat Specialist, and prepared to a formula of the Liverpool Throat Hospital, their peculiar properties are singularly effective and beneficial in all cases of Huskiness, Loss of Voice, etc. They impart clearness and tone to the voice. Sold by all Stores, Chemists, etc., at 1/- and 4/6 per box. Refuse imitations. *All genuine Pastilles bear a bar mark.* Send 1d. stamp (for postage) for sample box to EVANS SONS LESCHER & WEBB, Ltd., Liverpool.

J. POOLE & Co.,
104 Charing Cross Road,
and 2 Manette Street,
LONDON, W.C.
Established 1854.

All Inquiries Answered.
WRITE TO US FOR A QUOTATION.
Books Bought.

Books for all Exams.

SCHOOL,
CLASSICAL,
FOREIGN,
SCIENTIFIC,
MATHEMATICAL, Etc.,
BOOKS,
NEW AND SECOND-HAND.

Educational Books, Keys and Translations.

Ready January 18. *At all Booksellers and Bookstalls.*

THE NEW NELSON NOVEL.

2/- net **The Simpkins Plot.** **By George A. Birmingham.** **net 2/-**

This Month's Advertisers.

Publishers.

	PAGE
Messrs. G. W. Bacon and Co.	Inset
Messrs. George Bell and Sons	xlix
Messrs. Cassell and Co.	xlviii
Messrs. Meiklejohn and Holden	xlvii
Messrs. Methuen and Co.	xlix
Messrs. T. Nelson and Sons	Cover 2, 3, 4, l, li, lii
Oxford University Press	li
Messrs. G. Philip and Son	l
Messrs. J. Poole and Co.	li

Tutorial Colleges.

Mr. G. B. Clough's Correspondence College	xlvi
P. W. Ryde's Classes	xlviii

Miscellaneous.

	PAGE
Evans' Pastilles	li
Fry's Cocoa	Cover 1
Morton Brothers, Furniture	xlviii
Morton Brothers, Furs	l
Red, White, and Blue Coffee	l

School Equipment.

Educational Musical Instrument Co.	xlvii
Harbutt's Plasticene	li
School Government Chronicle	xlviii
Schoolmistress	li
"Swan" Fountain Pen	xlvii

CHARGES FOR ADVERTISEMENTS.

	£	s.	d.
Page (Ordinary)	5	5	0
Back Page	6	6	0
Half Page	2	12	6
Quarter Page	1	7	6
One-eighth Page	0	15	0

*** *Special Terms for Series on application.*

THE PRACTICAL TEACHER is published on the 25th of each month. Advertisements should reach the Office not later than the 10th of the month.

THOMAS NELSON AND SONS, 35 and 36 Paternoster Row, London, E.C.

An Up-to-date and Novel Series exactly meeting the new ideas in Handwork.

NELSON'S
APPLIED ARITHMETIC.

A New Course of Practical Number Work, Correlated with Simple Handcraft and Physical Science. Suitable for Upper Standards and for Evening School Work.

This Series is the work of one of the best known and most progressive educationists of the day, who prefers to remain anonymous.

It consists of:

Pupil's Book I. For Standard IV. . . . . Limp Cloth, price **4d.**

Pupil's Book II. For Standard V. . . . . Limp Cloth, price **6d.**

Teacher's Book I. To accompany Pupil's Books I. and II. **1s. 6d.**

Pupil's Book III. For Standard VI. . . . . Limp Cloth, price **6d.**

Pupil's Book IV. For Standard VII. . . . . Limp Cloth, price **8d.**

Teacher's Book II. To accompany Pupil's Books III. and IV. **1s. 6d.**

The Pupil's Books contain Graduated Manual Exercises and Numerical Tests, with Photographic Representations of Models.

The Teacher's Books contain full directions for dealing with the Course of Work, with Notes on Materials and Answers to the Examples in the Pupil's Books.

THOMAS NELSON AND SONS, London, Edinburgh, Leeds, Dublin, and New York.